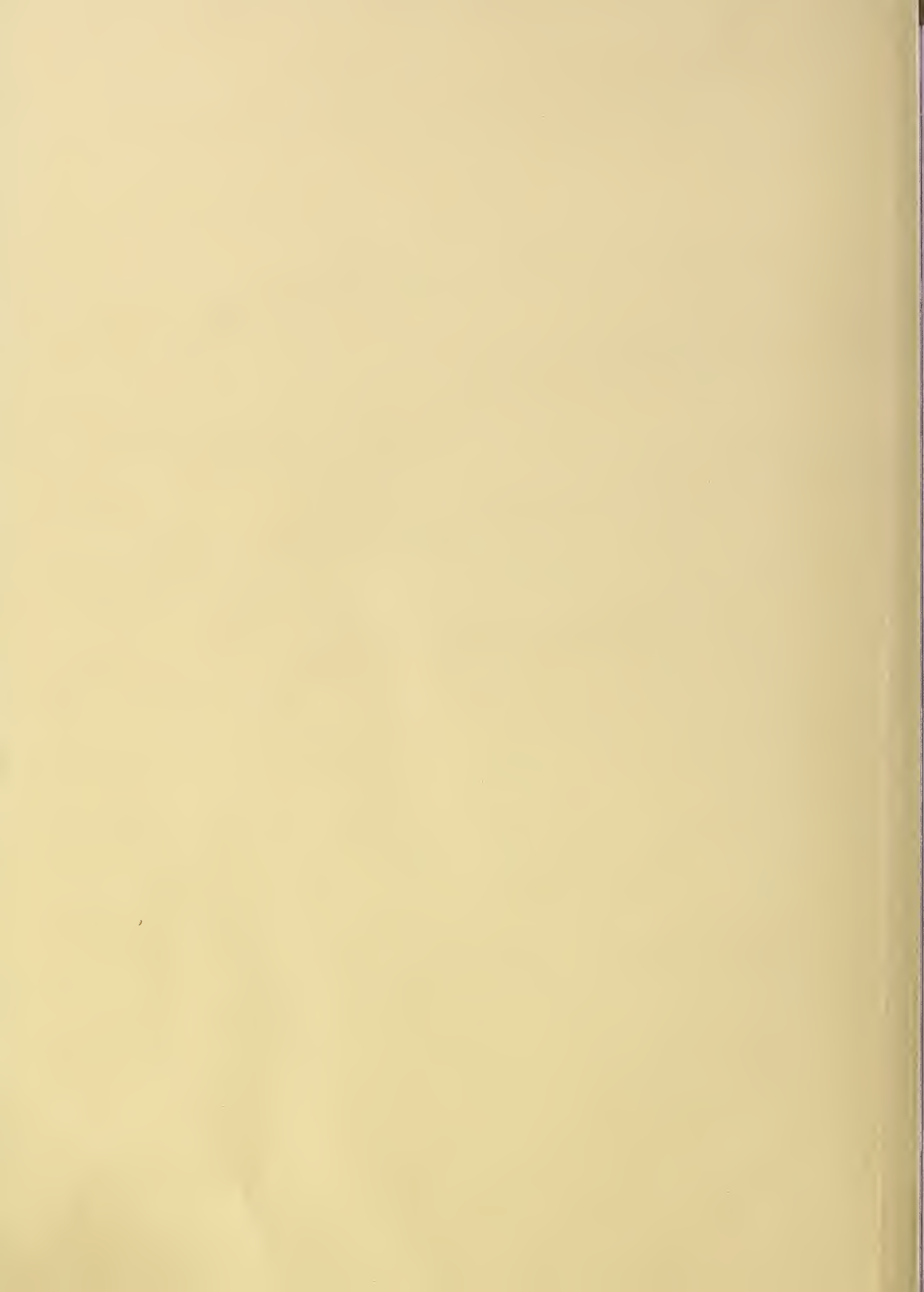


Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.



aSD11
.R23
No. 332
v.4

United States
Department of
Agriculture

Forest Service

Tongass
National Forest

R10 - MB-332

October 1996



Upper Carroll Timber Sale

Final Environmental Impact Statement

Record of Decision





EPA	Environmental Protection Agency
EVC	Existing/Expected Visual Condition
FEIS	Final Environmental Impact Statement
FSH	Forest Service Handbook
FSM	Forest Service Manual
GIS	Geographic Information System
IDT	Interdisciplinary Team
KPC	Ketchikan Pulp Company
KV	Knutsen-Vandenberg Act
LTF	Log Transfer Facility
LUD	Land Use Designation
LWD	Large Woody Debris (same as LOD)
MBF	One Thousand Board Feet
MELP	Multi-Entry Layout Process
MIS	Management Indicator Species
MM	Maximum Modification
MMBF	One Million Board Feet
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
P	Primitive
PR	Partial Retention
R	Retention
RM	Roaded Modified
RN	Roaded Natural
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
SHPO	State Historic Preservation Officer
SPM	Semi-Primitive Motorized
SPNM	Semi-Primitive Nonmotorized
TLMP	Tongass Land Management Plan
TRUCS	Tongass Resource Use Cooperative Survey
TTRA	Tongass Timber Reform Act
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
VCU	Value Comparison Unit
VQO	Visual Quality Objective
WAA	Wildlife Analysis Area

Acknowledgments

Front cover: By Cindy Ross Barber, 1992. The design illustrates the range of interconnected issues addressed in the EIS.



United States
Department of
Agriculture

Forest
Service

Ketchikan Area
Tongass National Forest

648 Mission Street
Ketchikan, AK 99901

File Code: 1950

Date: OCT 25 1996

Dear Reader:

Attached is the Record of Decision (ROD) for the Upper Carroll Project Area. If you requested complete documentation of this decision, the following items should be found in the package:

1. Record of Decision
2. Executive Summary
3. Final Environmental Impact Statement (Volume I)
4. Final EIS Appendices A-K (Volume II)
5. Final EIS Appendix L Response to Public Comment (Volume III)
6. Alternative Map Pack (two large scale maps)
 - (a) Map of Existing Condition (Alternative 1)
 - (b) Record of Decision Map

If you elected to receive the summary set of documents, the package should include only the ROD, Summary, and Maps. Copies of the entire Final EIS are available for review at Forest Service Offices in Ketchikan, Craig, and Thorne Bay. Copies have also been sent to libraries throughout Southeast Alaska.

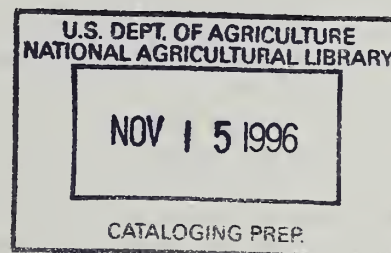
The ROD documents my final decision on the selection of an alternative, and the factors considered in reaching the decision. The effective date of implementation for the decision and the Notice of Rights of Appeal are also specified in the ROD.

I want to thank those of you who took the time to review and comment on the Draft Environmental Impact Statement and also those who participated in the Subsistence Hearings. Your interest in the management of the Tongass National Forest is appreciated.

Sincerely,

BRADLEY E. POWELL
Forest Supervisor

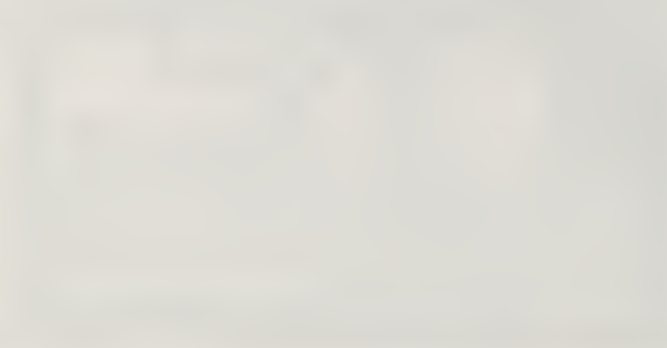
Enclosures



Caring for the Land and Serving People

Printed on Recycled Paper





MA 12 1000

Upper Carroll Timber Sale Final Environmental Impact Statement

Record of Decision

United States Department of Agriculture
Forest Service—Alaska Region
Ketchikan Area, Tongass National Forest

Lead Agency: USDA Forest Service
 Tongass National Forest
 Ketchikan Administrative Area

Responsible Official: Forest Supervisor
 Ketchikan Administrative Area
 Tongass National Forest
 Federal Building
 Ketchikan, AK 99901

For Further Information
Contact: Bill Nightingale, Project Manager
 Ketchikan Administrative Area
 Tongass National Forest
 Ketchikan Ranger District
 3031 Tongass Avenue
 Ketchikan, AK 99901
 (907) 225-2148

The USDA Forest Service proposes to harvest up to approximately 70 million board feet (MMBF) of timber in the Upper Carroll Project Area, Ketchikan Ranger District, Ketchikan Administrative Area, Tongass National Forest. Timber volume would be offered to the Ketchikan Pulp Company (KPC) under the KPC Long-term Timber Sale Contract (A10fs-1041) and/or the Ketchikan Area independent timber sale program. The actions analyzed in this EIS are designed to implement direction contained in the Tongass Land Management Plan (TLMP, 1979a, as amended) and the Tongass Timber Reform Act. The EIS describes 6 alternatives which provide different combinations of resource outputs and spatial locations of harvest units. The alternatives include: 1) No Action, proposing no new harvest from the Project Area at this time; 2) configure harvest units to provide the maximum amount of timber within Forest Plan Standards and Guidelines; 3) configure harvest units to emphasize timber sale economics, fisheries, wildlife, and subsistence values; 4) emphasize helicopter yarding in Neets Bay while allowing harvest at the Forest Plan implementation level in most other zones; 5) avoid harvest in Neets Bay and in potential goat winter range, minimize impacts to the west side of Carroll Creek through the use of helicopter logging; and 6) emphasize helicopter logging, visuals, and subsistence values.

Table of Contents

Background	1
Decision	2
Reasons For Decision	6
How Issues Are Addressed	7
Issue 1 Timber Harvest Economics and Supply	7
Issue 2 Fish Habitat and Water Quality	8
Issue 3 Recreation and Scenic Quality	11
Issue 4 Wildlife Habitat	12
Issue 5 Subsistence Use	15
Issue 6 Transportation/Utility Corridor	18
Issue 7 Social and Economic Effects	19
Issue 8 Marine Environment	20
Public Involvement	22
Coordination With Other Agencies	22
Alternatives Eliminated From Detailed Consideration	23
Alternative A Single Resource or Issue	23
Alternative B Transportation/Utility Corridor between Ketchikan and the Project Area	23
Alternative C Avoid Previously Mapped Old-growth Retention Areas	23
Alternative D Neets Bay/Orchard Lake Alternative	24
Alternative E Helicopter Logging Alternative	24
Alternative F "Fishermen's Alternative"	24
Alternative G	25
Alternatives Considered for Detailed Study	25
Alternative 1 (No Action)	25
Alternative 2	25
Alternative 3	26
Alternative 5	27
Alternative 6	27
Alternative 7	28
Environmentally Preferred Alternative	31
Administrative Record	31
Mitigation	31
Water Quality, Fish Habitat, Wetlands	31
Anadromous Fish Habitat	32
Beach Fringe and Estuaries	32
Temperature Sensitive Streams	32
Cavity and Snag-dependent Wildlife	32
Goshawks	33
Marbled Murrelets	33
Trumpeter Swans	34
Bald Eagle Nests	34
Whale Habitats	34
Marine Mammals	34
Waterfowl	35
Heron and Raptor Nest Protection	35
Alexander Archipelago Wolf	35
Mountain Goat	35
Subsistence	35
Scenic Quality	35
Cultural Resources	36
Sensitive Plants	36
Fisheries	36

Record of Decision

Soils	36
Log Transfer Facilities	36
Regeneration	36
Caves/Karst	37
Monitoring and Enforcement	37
Findings Required By Law	37
National Forest Management Act	37
Tongass Land Management Plan and Alaska Regional Guide	38
Clearcutting as the Optimal Method of Harvesting	38
Clearcuts Over 100 Acres in Size	39
Tongass Timber Reform Act	39
Proportionality—Original Method	39
Proportionality	40
Litigation Settlement	40
Transition Proportionality Analysis Method	40
Endangered Species Act	41
Bald Eagle Protection Act	41
Clean Water Act	42
National Historic Preservation Act	42
Federal Cave Resource Protection Act of 1988	42
ANILCA Section 810	42
Subsistence Evaluation and Findings	42
Subsistence Determinations	43
Necessary, Consistent with Sound Management of Public Land	43
Amount of Land Necessary to Accomplish the Purpose of the Proposed Action	44
Reasonable Steps to Minimize Adverse Impacts Upon Subsistence Uses and Resources	45
Executive Orders	46
Executive Order 11988	46
Executive Order 11990	46
Executive Order 12962	46
Coastal Zone Management Act	46
Federal and State Permits	47
Implementation Process	47
Process for Change During Implementation	47
Right To Appeal	48
Contact Person	49
Appendices	
1 ROD Unit List	
2 ROD Unit Cards	
3 ROD Road Cards	

List of Tables

Table ROD-1	ROD Unit Crosswalk Table	5
Table ROD-2	Cumulative Watershed Effects, Percentage of Watershed Harvested and Roaded in Third Order or Larger Watersheds	9
Table ROD-3	Stream Crossings to be Constructed	10
Table ROD-4	Acres of High Hazard Soils Harvested by Alternative	10
Table ROD-5	Potential Changes in Habitat Capability within the Project Area for MIS in 1997	13
Table ROD-6	Effect of Timber Harvest on Forest Fragmentation in Acres	14
Table ROD-7	Percent of 1954 Deer Habitat Capability for WAAs 406 and 510	17
Table ROD-8	Potential Transportation/Utility Corridor Access Miles	19
Table ROD-9	Log Transfer Facilities Required, by Alternative and System	21
Table ROD-10	Marine Benthic Habitat Affected by Alternative	21
Table ROD-11	Summary Comparison of Alternatives	29
Table ROD-12	Proportion of Volume Classes 6 and 7 Proposed for Harvest by Management Area as Described by Proportionality Analysis Method FSH 2409.18-93-3	40
Table ROD-13	Proportion of Volume Classes 6 and 7 Proposed for Harvest by Management Area as Described by Transition Proportionality Analysis Method	41

Record of Decision

Background

The purpose and need for this project is to implement direction contained in the Tongass Land Management Plan (TLMP 1979a, as amended), to help provide a sustained level of timber supply to meet annual and TLMP planning cycle market demand, and to provide local employment in the woods products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources. Another objective would be to provide timber volume that will contribute to a three-year current timber supply under the KPC Long-term Timber Sale Contract (No. A10fs-1042; Sections B0.61 and B0.62) and/or the Ketchikan Area Independent Timber Sale Program. The alternatives and actions considered are possible approaches to meeting this purpose and need. The EIS study process was designed to help insure that, in meeting this purpose and need, the Forest Service makes the most informed decision possible for this Project Area specifically, and for the Tongass National Forest generally. The Upper Carroll Project is expected to provide up to approximately 70 MMBF of timber, given the guidance of the Forest Plan.

The Project Area is partially within the KPC Contract Primary Sale Area; the remainder is within the Contract Contingency Area. Under TLMP, 100 percent of the Project Area has been given Land Use Designation (LUD) IV. The TLMP schedules timber sale preparation for all management areas in the Project Area. A comparison of the desired future condition for the Project Area, as reflected in the TLMP direction, with the existing condition shows the need to convert suitable stands of old growth to managed productive stands capable of long-term timber production.

Section 101 of the Tongass Timber Reform Act of 1990 (TTRA) directs the USDA Forest Service "... to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle." Section 101 of the TTRA specifies that Forest Service efforts to seek to meet market demand are subject to appropriations, National Forest Management Act (NFMA) requirements, and other applicable laws. Providing a timber supply from the Tongass for sustained local wood products industry employment and related economic and social benefits is an objective of the TLMP; the Alaska National Interest Land Conservation Act (ANILCA), as amended by the TTRA; and the KPC Long-term Contract.

There is demonstrated mill capacity in the region to process the logs, if supply of timber is available. There is also a projected need for the timber volume being considered from this Project Area (see Appendix A) for the Forest Service to come closer to meeting an objective of providing a three-year supply of timber under contract to the existing dependent industry, as a means of providing for stability in relation to fluctuating market demand (Morse, 1995). There is a substantial component of the economy of Southeast Alaska that is dependent on a viable timber industry. Based on these factors, the need for the project is clearly indicated.

Public scoping, data collection and analysis, and document production began with issuance of the Notice of Intent published in the Federal Register on August 28, 1994. This Record of Decision (ROD) and the Final Environmental Impact Statement (FEIS) disclose the environmental effects of the alternatives considered and document the decision for authorization of activities within the Project Area.

In developing the FEIS and this ROD, it is recognized that less than complete knowledge exists about many relationships and conditions of wildlife, fish, forests, jobs, and communities. The ecology, inventory, and management of a large forest area is a complex and developing science. The biology of wildlife species prompts questions about population dynamics and habitat relationships. The interaction of resource supply, the economy, and communities is the subject matter of an inexact science.

The data and level of analysis used in the FEIS were commensurate with the importance of the possible impacts (40 CFR 1502.15). When encountering a gap in information, the interdisciplinary team (IDT) took one of two approaches: (1) they collected the missing information or conducted the analysis necessary to identify important relationships; or (2) they concluded that, although the missing information would have added precision to estimates or better specified a relationship, the basic data and central relationships are sufficiently well established in the respective sciences that the new information would be very unlikely to reverse or nullify understood relationships. Thus, any information missing from the FEIS was determined to be not essential for a reasoned choice among the alternatives.

Decision

This Record of Decision documents my decision to make timber volume available from the Upper Carroll Project Area to meet the KPC Long-term Timber Sale Contract and/or the Ketchikan Area Independent Timber Sale Program requirements. My decision encompasses the following:

- the volume to make available under the contract in this Project Area in multiple "timber offerings";
- the location and design of timber harvest units;
- the location and design of road systems;
- the location and design of the log transfer facility;
- necessary standards and guidelines, mitigation measures, and enhancement opportunities for resources other than timber;
- whether there may be a significant restriction on subsistence use and if so, related findings and measures to minimize impacts on subsistence users;
- road management objectives to include closures for resource protection.

It is my decision to select Alternative 3 for implementation in the Upper Carroll Project Area (see the description of Alternative 3 in Chapter 2 of the FEIS). This decision is responsive to issues raised during scoping, data gathered and analyzed, public responses to the Draft Environmental Impact Statement (DEIS), and testimony received at the subsistence hearings.

Specifically, I select Alternative 3 without modification and authorize the required actions to implement this decision. Furthermore:

1. The Selected Alternative will harvest about 1,074 acres of commercial forest land (CFL) to meet the requirements of the KPC Long-term Timber Sale Contract and the Independent Timber Sale Program. This specified harvest will provide approximately 33 MMBF of sawlog and utility volume along with 1 MMBF of right-of-way (ROW) volume, for a total of 34 MMBF. ROD Appendix 1 lists each unit approved for harvest. Design features of the harvest units are described in detail on the Unit Design Cards in Appendix 2 of the ROD. Appendix B of the FEIS displays the harvest units greater than 100 acres and the reasons for exceeding this size. Silvicultural prescriptions will be developed for each unit prior to harvesting.

2. The Selected Alternative includes partial cut harvest, rather than clearcut harvest, for 15 acres. This is consistent with Forest Service Chief's policy to reduce the amount of clearcutting. Appendix H of the FEIS displays a list of harvest units by alternative for which partial cut harvest is prescribed. The partial cut harvest prescriptions for these units are intended to promote regeneration (especially red and yellow cedar), provide for stand structural diversity, maintain riparian habitat, maintain scenic quality, and leave young, vigorously growing trees. The impacts to residual trees will be minimized. The Unit Design Cards in ROD Appendix 2 of the FEIS provide specific direction for field layout to accomplish these objectives.
3. The Selected Alternative includes reconstruction of 3.7 miles of existing road, and construction of 21.1 miles of new road in order to access the specified timber harvest units. ROD Appendix 3 of the FEIS contains the Road Cards with direction for the location of each road. The Road Cards list road segments and road management objectives for future management of the transportation system.
4. The existing Log Transfer Facility (LTF) located at Upper Carroll Inlet will be reconstructed and used to transfer logs to the water after timber harvest. It is my decision to select the preferred method of log transfer for this LTF as the low-angle ramp method. This method consists of a shot-rock ramp sloped at 10 to 15 percent grade with wood or steel rails on the ramp surface. Log bundles are walked down the ramp into the water by use of a rubber-tired log loader. This decision is based on analysis found in the Marine Environment, Log Transfer Sites, and Related Facilities Section of Chapter 3 which documents that the low-angle ramp method for the LTF located at Upper Carroll has the least affect on marine habitat as well as being the most cost efficient. This LTF includes a permanent floating dock facility for administrative use, public access, and safety. The LTF located at Shelter Cove, which is currently being used to transfer logs to the water as part of the Shelter Cove Project, will be used for the six Upper Carroll harvest units that are associated with the Shelter Cove road system.
5. This Record of Decision identifies mitigation measures authorized to reduce or eliminate adverse environmental effects of the timber harvest and road construction activities specified in the Selected Alternative. Chapter 2 of the FEIS specifies the implementation and effectiveness monitoring that will be conducted to determine if the resource management objectives have been met.
6. Appendix I of the FEIS includes descriptions of the enhancement opportunities for the Selected Alternative which are feasible following implementation of this action. These opportunities will be included in Sale Area Improvement (SAI) plan(s) developed in conjunction with the timber sale contract documents for each offering.
7. I have identified certain lands which contain important wildlife habitat which will remain in their current condition for the duration of this project. These lands are depicted on the ROD map and labeled Old-growth Retention. Subsequent projects and the National Environmental Policy Act of 1969 (NEPA) analysis may specify changes in the locations of these areas; however, sufficient acreage will exist in an old-growth condition at all times to meet the requirements for Old-growth Retention (TLMP, 1979 as amended) and Standards and Guidelines of the March 1996 Revised Supplement Draft TLMP EIS (RSDEIS).
8. I have determined that there may be a significant possibility of a significant restriction of subsistence use of deer in the Project Area in the future. The effects of the Selected Alternative on the subsistence use of deer are minimal. However, increased demand and cumulative effects of future actions may at some point result in a significant restriction of subsistence use of deer and some furbearers (wolf and marten) in the Project Area. This restriction exists regardless of which alternative is implemented, including the No Action

Record of Decision

Alternative. As a result, I have determined that: (1) these actions are necessary, consistent with sound management of public lands, (2) the Selected Alternative involves the minimum amount of public land necessary to accomplish its purpose, and (3) reasonable measures to minimize impacts on subsistence uses and resources have been adopted to the extent practicable while still meeting the purpose and need for this project.

9. Class 1 anadromous streams will receive a minimum 300-foot no-cut buffer and where practical locate roads, tail holds, and guy-circles outside this stream buffer.
10. I have assigned ROD harvest unit numbers which reflect how the units will be tracked through layout, harvest, and post sale monitoring. Several of the unit configurations considered in the various alternatives adjoin each other and will be marked, traversed, harvested, and monitored as an individual unit. ROD Table-1 provides a crosswalk between the ROD harvest unit number and the FEIS harvest unit number for the Selected Alternative.

I have included a complete set of Harvest Unit Cards for the Selected Alternative in ROD Appendix 2. A ROD unit schematic map consisting of an orthophoto image and a topographic map image of the unit and roads has been included with the ROD Harvest Unit Cards. The unit schematic map is intended to facilitate (1) accurate layout, and (2) be utilized to document final layout.

I have included a complete set of Road Cards for the Selected Alternative in ROD Appendix 3. The road management and access objectives for the Selected Alternative are also included.

Table ROD-1
ROD Unit Crosswalk Table

ROD Unit Number	FEIS Unit Number
C01	127
C02	125
C03	111
C04	119
C05	120
C06	121
C07	35
C07	38
C08	3
C08	27
C08	28
C09	40
C09	41
C11	47
C11	49
C12	19
C13	20
C14	21
C15	22
C16	51
C17	55
C17	138
C18	8
C19	57
C19	58
C19	59
C20	68
C21	9
C22	61
C23	16
C24	64
C24	65
C24	66
C25	67
C26	72
C26	73
C27	130
C28	74
C29	131
C30	132

Note: ROD units displayed on ROD Map. The corresponding FEIS unit number is displayed on the alternative maps contained in the Summary and in Chapter 2 of the FEIS.

Reasons For Decision

1. In making my decision, I worked to assure consideration of all issues and to take into account the competing interests and values of the public. There were many divergent public, personal, and professional opinions expressed during this project. This decision will probably not completely satisfy any one particular group or individual. However, I considered all views, and I believe the decision I have made is reasonable. The Selected Alternative provides a beneficial mix of resources for the public within the framework of the existing laws, regulations, policies, public needs and desires, and capabilities of the land, while meeting the stated purpose and need for this project.
2. My decision to implement this Selected Alternative is in conformance with the Tongass Land Management Plan (TLMP 1979, as amended), the March 1996 Revised Supplement Draft Tongass Land Management Plan EIS (RSDEIS), and sound National Forest management. I have considered the need to help provide a sustained level of timber supply to meet annual and TLMP planning cycle market demand, and to provide local employment in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources. KPC Long-term Contract offerings implemented through this project will help meet KPC Long-term Contract timber supply needs.
3. I have determined that the estimated harvest volume of the Selected Alternative meets the purpose and need defined for the project.
4. I have deferred timber harvest in the majority of the large unfragmented old-growth habitat blocks that are over 1,000 acres in size including a portion of the Naha old-growth habitat block that is designated LUD IV under current TLMP direction. The west side of Carroll Creek which contains a small block of old-growth habitat will also be deferred from timber harvest at this time. This will serve as a small habitat reserve. Recent sightings of goshawks and probable nest locations in this area confirmed my decision to defer this area. These reserves meet the size, spacing, and distance parameters as set forth by the Interagency Viable Population (VPOP) Committee and the TLMP RSDEIS (1996a) Preferred Alternative. They are also consistent with the retention requirements under the current Forest Plan (TLMP 1979a, as amended). These identified old-growth habitat blocks will be retained for the duration of this project. This decision will defer harvest activities in them only for the duration of this project. Any future harvest will be considered through the National Forest Management Act (NFMA) and NEPA process.
5. The Selected Alternative is consistent with the proportional harvest requirement in the Tongass Timber Reform Act (TTRA) using the Timber Type Map (TIMTYP) methodology in the Forest Service Handbook (FSH) and also using the new transition method for calculating proportionality based on volume. The Selected Alternative meets or improves the proportionality which existed at the time of passage of the TTRA for Management Areas K32 and K35.
6. I have ensured that all alternatives including the Selected Alternative meet the visual quality objectives (VQOs) as specified from the priority travel routes and key viewsheds. These priority travel routes and key viewsheds include: (1) Upper Carroll/Shelter Cove; (2) Upper Carroll estuary; and (3) Head of Neets Bay. Actual viewpoints used in the analysis for meeting the VQOs for each viewshed are specified in Chapter 3 of the FEIS.
7. I have designed the Selected Alternative so that only one unit will exceed 100 acres. This unit which exceeds 100 acres is justified on the basis of topography, effects upon wildlife and fish habitat, and logging and transportation systems requirements. This unit was described in Chapter 3 and in Appendix B of the DEIS and FEIS.

8. In the development of the Selected Alternative, I have taken action to implement the policy set by the Chief of the Forest Service on ecosystem management and a reduction in clearcutting. I have specified that 15 acres will be harvested using shelterwood silvicultural treatments to promote regeneration, especially for red and yellow cedar. All timber harvest in the Selected Alternative, except that described in Chapter 3 under the Silviculture section, is prescribed as type 1 and 2 clearcuts. Finally, all units will include ecosystem management principals including green tree retention. This includes the leaving of standing green trees, small islands, and other forms of structural diversity. The specific objectives for each unit are listed in Chapter 3 of the FEIS and in the ROD, Appendix 2, Unit Design Cards.
9. Shelterwood harvest is a relatively new silvicultural system in Southeast Alaska. However, the units for which shelterwood harvest is prescribed were identified and designed to ensure the success of the regeneration. This includes removing a portion of the trees within the unit, while successfully retaining individual trees and/or groups of trees. The specific harvest objectives are described in the ROD Unit Design Cards. Silviculture and logging system specialists will apply this direction in the preparation of the units for harvest. Sale administrators will ensure that the logging operations accomplish the harvest objectives for these units. Implementation of these prescriptions is intended to add to our knowledge of alternate treatments for Southeast Alaska timber types.
10. The Selected Alternative will provide the highest economic return to the Federal Government while still meeting the previously mentioned resource objectives. The Selected Alternative provides a net return of \$19.06 per thousand board feet as indicated by the mid-market analysis.
11. Some public responses suggested changing all cable units to helicopter yarding. After careful consideration, I have decided to utilize some helicopter yarding to accomplish the goals and objectives of resource protection as well as to help mitigate some watershed, wildlife, and visual resource concerns. Analysis of converting all or combinations of units within most action alternatives to helicopter yarding showed above average helicopter yarding costs that could not be offset by projected stumpage values. These higher costs seriously impacted the economic efficiency of most action alternatives where a large percentage of a particular alternative is scheduled for helicopter yarding. Of the acreage in the Selected Alternative, approximately **three** percent is scheduled to be helicopter logged.

How Issues Are Addressed

In the following summary, I detail how significant issues are addressed within the Selected Alternative.

Issue 1

Timber Harvest Economics and Supply

Of the five action alternatives, Alternative 3 produced the highest stumpage rate. The Selected Alternative produces the highest mid-market stumpage rate of +\$19.06 per thousand board feet. Actual returns from the harvest will be determined for each timber offering based on current market conditions as determined through the Timber Sale Appraisal and subsequent bids (for independent timber sales).

Of the five action alternatives, Alternative 2 incurred the highest logging costs (\$647.29/MBF) and the lowest stumpage value estimate (-\$158.40/MBF). Under Alternative 2, a Shelter Cove to Carroll Inlet road tie is analyzed for its economic effects. The estimated cost of the road tie (\$6,070,000) was not offset by the value of the timber harvested under the alternative. The mid-market stumpage value estimate went from -\$51.95 to -\$158.40 per

MBF with the Shelter Cove road tie. Alternative 3 has the lowest estimated logging cost (\$458.01/MBF) and the highest estimated stumpage value (+\$19.06) of all the action alternatives.

The economic viability of Neets Bay helicopter and cable units is analyzed within Alternatives 2 and 5. Their negative mid-market values of -\$51.95 and -\$53.64 per MBF respectively, is a result of several factors which include: (1) helicopter yarding factors: above average yarding distances, elevational differences of greater than 2000 feet, support service landing areas (fuel, maintenance, etc.) being located farther than average, and flight path adjustments in Neets Bay to avoid the Southern Southeast Regional Aquaculture Association (SSRAA) facility located nearby including their salmon holding pens; and (2) additional roading cost factors such as above average road building costs to access Neets Bay cable units, Shrimp Bay LTF (road tie), additional miles of road required to access a low amount of difficult and isolated timber volume.

Public concern has been focused on the effects of falldown on community stability and the rate of harvest (ASQ) scheduled in the Forest Plan. The Forest Service has addressed this issue by incorporating updated information into the Forest Plan Revision (TLMP RSDEIS, 1996a) which includes not only the effects of falldown, but land use allocations and revised standards and guidelines. The Ten-Year-Sale-Action Plan included as part of Appendix A of the Upper Carroll FEIS has been updated to reflect these changes for both the Tongass National Forest and the Upper Carroll Project Area. The Upper Carroll project is consistent with the existing Forest Plan (TLMP, 1979 as amended) and the standards and guidelines for the TLMP RSDEIS (1996a) Preferred Alternative.

In addition to the actions listed above, the Upper Carroll Project includes a range of alternatives that would harvest from 19 MMBF (Alternative 7) to 64 MMBF (Alternative 2) of the volume originally scheduled. The remaining alternatives would harvest approximately 33, 34, and 54 MMBF (Alternatives 6, 3, and 5 respectively).

Highlights of the Selected Alternative (3) include the following:

- Does the best job of balancing resource protection and timber supply, while still providing an economically viable timber sale.
- Produces the highest mid-market estimated stumpage rate (+\$19.06/MBF)
- Produces 34 MMBF of economically viable timber to help support the local forest products industry.

Issue 2

Fish Habitat and Water Quality

There is no measurable effect on water quality or fisheries production by any of the timber harvest or associated activities proposed by any of the action alternatives. All alternatives meet the requirements and intent of the Clean Water Act. Implementation of project specific stream buffers that range up to 500 feet, which meet or exceed the TTRA's requirement to provide a minimum 100-foot buffer on Class I streams and Class II streams flowing directly into Class I streams, would effectively mitigate direct stream channel impacts from proposed timber harvest and road construction. Adherence to Best Management Practices (BMPs) outlined in the Soil and Water Conservation Handbook (USDA FSH 2509.22) during the design of units and roads will minimize the potential direct effects to fish as well.

The Upper Carroll Project and Watershed Analysis (Appendix F) implement the recommendations applicable to project-level planning presented in the Anadromous Fish Habitat Assessment (AFHA) report of January 1995. Site-specific BMPs were developed and selected to minimize the potential for impact to fish habitat. For example, Class I anadromous streams received a 300-foot no-cut buffer prescription in Carroll Creek. Site-specific BMPs were developed and selected to minimize the potential for impact to fish

habitat. These site-specific BMPs are noted on the individual ROD Unit Design and Road Cards in ROD Appendix 2 and 3.

Fish habitat capability models are used to estimate the effects of timber harvest on the capability of streams to provide habitat for selected species of salmon and trout. Because there are many factors which influence fish populations—including commercial/sport harvest, oceanic conditions, and predation—these computer models provide only relative measures of habitat capability. These models indicate that there is no significant direct change in habitat capabilities.

Every major watershed within the Project Area has experienced prior timber harvest and road construction. Re-entering these drainages may generate a greater potential risk for impacts on water quality, with the risk expected to be greater in those watersheds with the higher cumulative percents of harvest. Table ROD-2 shows the existing direct and indirect effects of timber harvest and road construction by third order or larger watershed during the 15 year period, 1982-1997.

Table ROD-2
Cumulative Watershed Effects, Percentage of Watershed Harvested and Roaded in Third Order or Larger Watersheds

Watershed Number	Watershed Harvested and Roaded 1982-1997					
	Alt. 1	Alt. 2	Alt. 3	Alt. 5	Alt. 6	Alt. 7
C41B	0	3	0	1	0	0
C43A	0	19	0	19	0	0
C58A	0	4	0	0	0	3
D69B	0	3	1	2	2	0
D70C	0	8	5	6	5	2
D71A	0	4	8	11	3	3
D74A	0	1	0	0	0	0
D79A	10	23	22	18	18	22
D80B	0	0	0	0	0	0

SOURCE: Babik, 1996

Another measure of potential risk to fish habitat from timber harvest is the associated new road construction and road reconstruction which cross streamcourses (see Chapter 3-Fisheries). During placement of culverts or bridges, sediment may be introduced into the streams which may have short- or long-term effects on water quality. Alternative 7 proposes the fewest stream crossings, while Alternative 2 proposes the most. This is shown in Table ROD-3.

Table ROD-3
Stream Crossings to be Constructed

	Alt. 1	Alt. 2	Alt. 3	Alt. 5	Alt. 6	Alt. 7
Class I	0	15	11	17	10	8
Class II	0	25	11	17	13	1
Class III	0	127	72	74	52	3
Total Crossings	0	167	94	100	108	12

SOURCE: Oien, 1996

Following timber harvest, there is an increased risk of landslides until second growth and the brush layer become firmly established. One way of analyzing this risk is to determine the amount of timber harvest on slopes which have high mass movement index (MMI) soils. This rating does not imply that such a mass-wasting event will occur; rather, it ranks the alternatives on the basis of the potential for a mass-wasting event to occur, which may or may not result in an increase in stream sediment. This increased stream sedimentation may result in some loss or impairment of resident and anadromous fish spawning and rearing habitat. Table ROD-4 displays the proposed harvest on high MMI and very high MMI soils by alternative. Virtually all very high MMI soils have been removed from the timber base. Only those sites that appear to be small inclusions or mistyped have been retained in the unit pool. These sites have been examined by a professional soil scientist as part of unit reconnaissance.

Table ROD-4
Acres of High Hazard Soils Harvested by Alternative

	Alt. 1	Alt. 2	Alt. 3	Alt. 5	Alt. 6	Alt. 7
High MMI soils	0	520	245	455	231	107
Very High MMI soils*	0	0	0	0	0	0

SOURCE: Babik, 1996

* See Chapter 3-Soils for details of MMI classification

The Carroll Creek and Neets Creek watersheds were evaluated for sediment delivery and depositional potential using a watershed-level analysis (Geier and Loggy, 1995). The watersheds were divided into sub-basins and reaches. Sediment transport and deposition indices were developed based upon watershed morphology, discharge, and potential sediment sources (for a detailed description of this process see FEIS Appendix F, Sediment Transfer and Deposition Analysis Procedure). This sediment transfer index indicates where in a watershed sediment production and deposition is a potential problem for maintenance of aquatic habitat. The quantity of sediment transported and deposited depends upon a number

of factors, including nature of sediment source, stream discharge, and channel morphology. These are factors that resource managers must consider when they undertake activities on areas that are linked to important aquatic habitat.

Results of this sediment transport and deposition risk assessment for roads and units in the Upper Carroll action alternatives indicate that Alternatives 7, 6 and 3 have a lower overall risk of sediment delivery to streams. Alternative 7 harvests the fewest acres, avoids new road construction, utilizes helicopter logging, and avoids most sensitive areas. Alternative 3 reduces overall risk by minimizing harvest unit location and road construction near stream courses in high risk sub-basins and proposing no activities in Neets Creek watershed, and in the west fork of Carroll Creek. Alternative 6 is generally similar to Alternative 3 except that it makes a helicopter entry into the west fork of Carroll Creek. This is somewhat offset by avoiding several units with high sediment deposition index (SDI) ratings in Sub-basin S04. Alternative 5 presents a higher risk of producing sediment that may affect beneficial uses, mainly by proposing road construction and timber harvest in the west fork of Carroll Creek along with helicopter logging in Neets Creek. Alternative 2 poses the highest risk of sediment delivery from road related sediment. It also proposes a number of timber harvest units and roads in the west fork of Carroll Creek, plus the Neets Creek watershed.

Highlights of the Selected Alternative (3) include the following:

- Implements the recommendations applicable to project-level planning presented in the Anadromous Fish Habitat Assessment (AFHA) Report.
- Implements 300-foot buffers along Class I anadromous streams.
- Protects water quality at the Southern Southeast Regional Aquaculture Association (SSRAA) Fish Hatchery by avoiding harvest in Neets Creek (VCU 737).
- Reduces overall risk by minimizing harvest unit location and road construction near stream courses in high risk sub-basins and proposing no harvest activities in the Neets Creek watershed, or in the west fork of Carroll Creek.
- Avoids timber harvest on important riparian areas and fens identified as part of the Watershed Analysis. This helps to protect riparian habitat and regulate streamflow.

Issue 3

Recreation and Scenic Quality

This issue addresses concerns for outdoor recreation and scenic viewing opportunities offered in and around the Upper Carroll Project Area and the effects timber harvest and transportation system development may have upon these opportunities.

The Selected Alternative locates timber harvest within previously unharvested areas and increases development within the existing developed areas. However, the Project Area contains only a small amount of the total recreation opportunities on the Tongass National Forest, and there are similar recreation opportunities nearby. This shift in recreation opportunities is a minor impact when viewed forest-wide.

All alternatives have similar effects on the distribution of Recreation Opportunity Spectrum (ROS) acres within the Project Area.

The current recreation inventory for the Upper Carroll Project Area contains four existing and three proposed Recreation Places. Five of these Recreation Places will not be directly affected by any of the proposed activities in the alternatives. The Selected Alternative has the second lowest amount of timber harvest activities proposed in these Recreation Places with some timber harvest in two of the four existing Recreation Places.

Record of Decision

All alternatives meet the visual quality objectives as specified from the priority travel routes and their viewsheds. These priority travel routes and key viewsheds include: (1) Upper Carroll/Shelter Cove; (2) Upper Carroll estuary; and (3) Head of Neets Bay.

Highlights of the Selected Alternative (3) include the following:

- Meets the visual quality objectives as specified from the priority travel routes and their viewsheds.
- Avoids impacts to the Neets Bay viewshed and has a relatively low impact to the Upper Carroll Estuary viewshed.
- The application of 1,000-foot estuary, 500-foot beach, and 300-foot anadromous stream buffers serve to help screen management activities and to protect recreational fisheries use.

Issue 4

Wildlife Habitat

Table ROD-5 displays the potential reduction in wildlife habitat capabilities, as estimated by habitat capability models, for the key Management Indicator Species (MIS) found in the Upper Carroll Project Area. This table displays the 1954 long-term habitat capability and estimated short-term reduction in habitat capability after potential implementation of the alternatives.

The major effect on wildlife habitats in all action alternatives is the reduction of old-growth forest habitat. Impacts to other habitats were reduced by the interdisciplinary design of units prior to alternative formulation. All action alternatives result in impacts consistent with the implementation of the TLMP (1979a, as amended) and Alternative 3 of the March 1996 Revised Supplement Draft TLMP EIS (RSDEIS), Standards and Guidelines. The Selected Alternative identifies old-growth retention as per TLMP 1979a in a fashion which incorporates the viable population strategy consistent with the VPOP Committee Report and the TLMP RSDEIS (1996a) Preferred Alternative.

Table ROD-5

Potential Changes in Habitat Capability within the Project Area for MIS in 1997

Species	Habitat Capability		Changes from 1995 by Alternative						
	1954	1995	1	2	3	5	6	7	
Sitka black-tailed deer	629	389	0	-32	-18	-25	-22	-13	
black bear	75	70	0	-4	-3	-3	-3	-2	
otter	26	17	0	-1	-1	-1	-1	-1	
marten	58	44	0	-5	-3	-4	-3	-2	
hairy woodpecker	501	341	0	-38	-21	-30	-23	-16	
Vancouver Canada goose	86	74	0	-7	-6	-7	-6	-5	
bald eagle	54	40	0	0	0	0	0	0	
brown creeper	993	497	0	-53	-29	-42	-29	-20	
red squirrel	24,637	22,714	0	-1,488	-824	-1,160	-856	-536	
grey wolf	2.3	1.5	0	0	0	0	0	0	

Source: Burns 1996

Note: Deer habitat capability assumes the unit has zero habitat value.

Forest fragmentation represents a change in the overall forest landscape from large, contiguous blocks of old-growth forest to smaller blocks separated by timber harvest units. Increased amounts of forest fragmentation indicate reduced habitat potential for species which are thought to be dependent on interior old-growth forest habitat. One way to analyze forest fragmentation is to measure the reduction of large, contiguous blocks of old-growth forest as a result of timber harvest. Large and medium-sized blocks of old growth (Naha Roadless Area, Misty Fiords National Monument, Traitor's Cove Retention, Orchard Lake, and Swan Lake) are adjacent to the Project Area. In addition, the Project Area contains a significant amount of old-growth habitat in blocks over 1,000 acres in size. Table ROD-6 displays the number of acres of old-growth habitat in large blocks that will remain after implementation of an alternative.

Table ROD-6
Effect of Timber Harvest on Forest Fragmentation in Acres

	Alt. 1	Alt. 2	Alt. 3	Alt. 5	Alt. 6	Alt. 7
Acres of large, unfragmented blocks 100-500 acres remaining after harvest	2,243	3,492	3,329	3,607	2,920	3,027
Acres of large, unfragmented blocks 500-1,000 acres remaining after harvest	2,270	5,881	4,381	6,282	4,058	4,601
Acres of large, unfragmented blocks >1,000 acres remaining after harvest	11,735	4,563	7,135	4,494	7,940	7,724
Total Acres of old growth remaining after harvest	17,641	15,644	16,567	16,023	16,609	17,050

SOURCE: Burns and Nightingale, 1996

Note: Old growth includes only Volume Class 4 and above.

A portion of the Naha old-growth habitat block extends outside of the LUD II area into the Project Area. This portion of the block is designated as a LUD IV under the current Forest Plan (TLMP 1979, as amended) and is available for timber harvest. Alternatives 2 and 7 propose to harvest two units totaling 48 acres within this old-growth block. The remaining alternatives do not propose any harvest within this block primarily for economic and wildlife management reasons.

The west side of Carroll Creek represents a small block of unfragmented old-growth habitat located inside the project boundary. The southwest portion of this area is adjacent to the Naha Block. Alternative 3 does not propose any harvest within this block primarily for economic and wildlife management reasons. Alternative 7 would harvest a very minor amount of timber (43 acres). Alternatives 2, 5, and 6 would harvest 302, 317, and 237 acres respectively from the Carroll Creek block.

Late successional wildlife travel corridors that provide connectivity between core areas of unfragmented old-growth habitat were analyzed. These corridors contain 2,737 acres of which 799 acres are not commercial forest land. Alternative 2 would impact the corridors to the largest degree (73 acres), followed by Alternatives 5 and 6 (60 acres), Alternative 3 (25 acres), and Alternative 7 (1 acre). The TLMP RSDEIS (1996a) Preferred Alternative Standards and Guidelines, proposes wildlife travel corridors of approximately 600 feet in width. No timber harvest is proposed under any of the action alternatives that would result in a wildlife travel corridor being less than 600 feet wide.

Highlights of the Selected Alternative (3) include the following:

- Incorporates the viable population strategy of small, medium, and large old-growth reserves consistent with the VPOP committee recommendations and TLMP RSDEIS (1996a) Preferred Alternative.
- Meets the TLMP (1979, as amended) old-growth retention requirements
- Does not impact the Naha large old-growth habitat reserve block or the west side of Carroll Creek.
- Designating the west side of Carroll Creek as a small block of old-growth retention will result in greater protection for a probable goshawk nest site than would otherwise occur.
- Meets the proportionality requirement of the Tongass Timber Reform Act, as measured by the current method and the transition method.
- Results in relatively few miles of new road construction, all of which is scheduled for closure (administrative or physical). A road connection to Shelter Cove is not constructed, thereby limiting the likelihood of significant additional hunting pressure.
- Harvests primarily lower value wildlife habitat, as indicated by the relatively minor change in the current habitat capability indices.
- The application of 1,000-foot estuary, 500-foot beach, and 300-foot anadromous stream buffers will also serve to help protect some of the more important wildlife habitat.

Issue 5

Subsistence Use

This issue reflects public concern for the availability of wildlife, marine life, and plants for customary and traditional use by rural Alaska residents. The Alaska National Interest Lands Conservation Act (ANILCA) requires the Forest Service to determine if proposed activities may significantly restrict use of subsistence resources. If such a finding is made, then ANILCA requires public hearings and determinations regarding actions to minimize impacts prior to proceeding with a project.

Chapter 3 of the FEIS evaluates the potential site-specific effects on subsistence that could result from implementing any of the proposed timber harvest and associated road construction alternatives.

The Tongass Resource Use Cooperative Survey (TRUCS) identified areas which are most heavily used by subsistence households. Based on the TRUCS, the Project Area contains no high or moderate use subsistence areas. High and moderate use is interpreted to mean greater than 50 households ever used the area for subsistence deer hunting.

The Project Area is located within portions of two Wildlife Analysis Areas (WAA), 406 and 510. The harvest is 104 deer per year based on Alaska Department of Fish and Game (ADF&G) hunter surveys for both complete WAAs. Approximately 19 percent of the original (1954) habitat capability is needed to support this level of deer harvest. Currently (1995) the two full WAAs provide 81 percent of the original habitat capability for deer. The habitat capability through the year 2004 is projected to be approximately 78 percent of the original (1954) habitat capability.

Competition for subsistence resources in the Project Area is an issue identified during scoping. Subsistence users are concerned with competition from residents of Ketchikan. Since Ketchikan residents are considered non-rural, this competition can be regulated under ANILCA if it starts to restrict rural residents' ability to obtain subsistence resources. In the Wildlife Section, the cumulative analysis discussed a potential road connection between the Project Area and the Ketchikan road system. If such a connection is made, it would significantly increase the amount of rural and non-rural use of the area and could increase the amount of competition to the point that there would be a significant restriction in subsistence use of deer and marten in the Project Area.

The subsistence analysis indicates that the actions proposed in Alternatives 2 through 7 will not represent a significant possibility of a significant restriction on subsistence use of deer, black bear, or otter in the Project Area. Marten harvest in WAA 510 is at the peak of the level that can be sustained. Increasing human population coupled with future reductions of habitat capability for deer and marten, and in light of the fact that Saxman residents' use of the area is under-reported for the Project Area, could pose a significant possibility of a significant restriction of subsistence use of marten and deer at some point in the future (next 150 years) for all alternatives including the No Action Alternative.

The Federal Subsistence Board may use its authority to regulate non-rural harvest of deer and has authority to prioritize the harvest of deer among rural residents when necessary to protect the resource. **The current deer population level does not require restrictions on non-rural users.**

Deer hunting is one aspect of subsistence use affected by timber harvest. The Wildlife and Subsistence sections of the FEIS Chapter 3 discuss the computer models used to estimate the effects of timber harvest on deer habitat capability, both long range and short range. Based on this analysis, Alternative 1 will cause no reduction of deer habitat capability. Among the action alternatives, Alternative 7 would cause the least reduction to deer habitat capabilities, while Alternative 2 would reduce deer habitat capabilities the most severely within the Project Area; although all action alternatives result in less than a one percent reduction in current habitat capability for both WAAs.

Table ROD-7 displays the percent of the original (1954) deer habitat capability the WAAs (406 and 510) can support now and at the end of the KPC Long-term Sale (2004). The full WAA habitat capability has not been reduced for the effects of fragmentation.

Table ROD-7
Percent of 1954 Deer Habitat Capability for WAAs 406 and 510

Alternative	Percent of 1954 Habitat Capability		Percent of 1954 Habitat Capability Needed to Meet Current Demand
	1997	2004	1995
1	81	78	19
2	81	78	19
3	81	78	19
5	81	78	19
6	81	78	19
7	81	78	19

SOURCE: Burns, 1996

Note: Habitat capability for entire WAAs has not been reduced for fragmentation.
Habitat capability assumes the units are in the clearcut stage (0-25 years).
Habitat capability in 2004 assumes full implementation of the Forest Plan for all alternatives (maximum timber harvest within standard guidelines—no reduction for economic constraints).

There is no evidence to indicate that availability of salmon, finfish, shellfish, or other food resources to subsistence users would be affected by the proposed ROD activities, sport harvest, or non-rural harvest. Any increase in competition from non-rural Alaskan residents and nonresidents would not be substantial because of the availability of resources in the immediate vicinity and in the surrounding areas.

Highlights of the Selected Alternative (3) include the following:

- Results in relatively few miles of new road construction, all of which is scheduled for closure (administrative or physical). A road connection to Shelter Cove is not constructed, thereby limiting the likelihood of significant additional hunting pressure.
- Harvests primarily lower value wildlife habitat, as indicated by the relatively minor change in the current habitat capability indices.
- The application of 1,000-foot estuary, 500-foot beach, and 300-foot anadromous stream buffers will also serve to help protect important subsistence use areas.
- The west side of Carroll Creek has been avoided to protect high value fish and wildlife habitat.

Issue 6

Transportation/Utility Corridor

The Tongass Land Management Plan Revision team has mapped the transportation and utility corridors on the Tongass National Forest. The maps show two corridors passing through the Project Area. The Alaska Legislature passed Senate Joint Resolution 40 during the 1992 session. This resolution urges the Forest Service to avoid actions which would preclude the use of any of the transportation and utility corridors identified by an interagency group.

The Upper Carroll Project Area contains approximately 30 to 40 miles of the various potential routes identified to date. The Interdisciplinary Team (IDT) reviewed the possibilities of action being taken on the transportation and utility corridors in the foreseeable future. The review indicated that the corridor could be used for electrical transmission lines within the next decade. The review concluded that the road connections proposed are unlikely within the foreseeable future and that no actions proposed under any alternative would preclude use of any of the transportation and utility corridors.

The *Lake Tyee to Swan Lake Transmission Intertie* (R.W. Beck and Associates., 1992) presents a feasible electric power transmission line route within the Project Area. The preferred route identified in the R.W. Beck study passes through the Project Area by way of Carroll Creek and Neets Creek drainages. Ketchikan Public Utilities has awarded a contract to Foster Wheeler Environmental Corporation to complete an EIS for the proposed electrical intertie. A DEIS was issued in March 1996; the FEIS is planned for November 1996. The initial routes through the Project Area have remained essentially unchanged.

The Ketchikan Gateway Borough and the Alaska Department of Transportation and Public Facilities cooperated in an examination of highway corridor opportunities south of Bradfield Canal. This study, Ketchikan-Revillagiedo Island Corridor Study (R&M Engineering, 1992), identified a preferred highway route that passes through the Project Area along the west side of Carroll Inlet, then north along Carroll Creek until the junction with Neets Creek and Orchard Creek. At this point one potential route heads north outside the Project Area toward Orchard Lake, the other route follows Neets Creek before heading north to Shrimp Bay. As part of the Upper Carroll field reconnaissance, the Forest Service located and flagged on the ground the preliminary route from Shelter Cove to Shrimp Bay. This alternative route uses a ferry terminal at Shrimp Bay as an alternative to the route on the north side of Orchard Lake and some very difficult highway building terrain north of Shrimp Bay.

The IDT considered these routes in alternative formulation and also evaluated them for likelihood of construction within the foreseeable future through other means. For the purpose of this analysis, the reasonably foreseeable time frame over which the indirect effects are estimated is until the end of the Ketchikan Pulp Company (KPC) Long-term Contract (year 2004). This determination of reasonably foreseeable is based on the time frame of the KPC contract commitment.

Based on the feasibility and likelihood of findings for power transmission projects within Southeast Alaska, the IDT concluded that the construction of the Swan Lake to Lake Tyee powerline was likely within the foreseeable future.

The effects of the possible construction of the power line within the Project Area have primary effects on the visual resource. The clearing of the corridor along the transmission lines would be seen from a number of view points.

The actions proposed in the Project Area could potentially benefit the transmission project by incidental transportation and logistical use. The construction of the transmission lines across National Forest lands normally requires removal of all merchantable timber felled along the corridor. The road system will allow shorter flights for helicopters removing the timber which would reduce costs. The roads will also allow shorter transportation by helicopter for towers, cable, and other logistics. This activity is expected to result in a reduction of costs. Table ROD-8 displays the miles of road that would be constructed or reconstructed that could potentially serve as access to a possible utility corridor or eventually as a transportation link within the Project Area under each alternative.

Table ROD-8
Potential Transportation/Utility Corridor Access Miles

Alternative	Utility Corridor Miles	Transportation Link Miles
1	0	0
2	23.2	31.9
3	6.5	4.2
5	8.9	6.8
6	8.9	6.8
7	2.7	0.4

SOURCE: Nightingale and Oien, 1996

Based on the historical nature of state highway development in Southeast Alaska and limited funding, the IDT concluded that a road connection would not reach the Project Area within the foreseeable future.

The IDT evaluated the action alternatives as requested by State of Alaska Senate Joint Resolution 40, and determined that none of the action alternatives will preclude the identified transportation and utility corridors within the foreseeable future.

Highlights of the Selected Alternative (3) include the following:

- Results in relatively few miles of new road construction. Approximately 6.5 miles of road extending northward from the Carroll Inlet LTF could possibly be used to facilitate the construction and/or maintenance of the Swan Lake to Lake Tyee Powerline Intertie. Approximately 4.2 miles of road could potentially be utilized as part of a future transportation link.

Issue 7

Social and Economic Effects

This issue reflects concern about economic development and employment, and about maintaining Alaskan lifestyles. Social and economic effects are important to the Forest Service in its land management decision-making. Land use designations, scheduling of activities, and rural development program decisions are all made with consideration of social and economic effects.

Implementation of the Selected Alternative authorizes harvest of approximately 33 MMBF of timber volume from harvest units, and 1 MMBF from road right-of-ways, for a total of 34 MMBF. Additionally, it authorizes new road construction on approximately 21.1 miles of road, and reconstruction of 3.7 miles of existing road. The Selected Alternative provides raw materials to support the local forest products industry. The Selected Alternative could provide, on the average, 65 forest product jobs annually over the next four years.

None of the alternatives are projected to have a measurable effect on income or employment opportunities in the sport or commercial fishing industries or those related economic sectors. Since little commercial recreational activity takes place in the Upper Carroll Project Area and because the alternatives affect only some of the inventoried Recreation Places, no significant impact is expected on employment and income opportunities in the recreation and tourism industry.

I have verified that the harvest levels proposed for the Selected Alternative are consistent with the principles of long-term sustained yield and non-declining even flow. Analysis in Chapter 3 of the FEIS and the TLMP RSDEIS (1996a) indicate that these harvest levels can be sustained over time, assuming economic predictions take place on schedule and the suitable timber base remains relatively constant over time.

Highlights of the Selected Alternative (3) include the following:

- Produces 34 MMBF of economically viable timber to help support the local forest products industry.
- Results in approximately 65 forest products jobs annually over the next four years.
- Funds received by the State of Alaska from the sale of timber on National Forest Lands (25 percent) will continue to contribute funding for local public schools and road maintenance.

Issue 8

Marine Environment

Direct effects to the marine environment are assumed to occur only from development and use of LTFs, and are limited to the intertidal area affected by rock fill and either the intertidal or subtidal areas potentially affected by accumulations of bark debris.

A total of five potential LTF locations were considered for possible development. There are four existing LTF sites and 1 potential new site. The maximum number of LTFs that would be utilized under any alternative is three (one new site and two existing sites), as there are several possible sites considered for each road system. The final selection of which LTF sites to utilize was based on the interagency guidelines (Alaska Log Transfer Facility Siting, Construction, Operation, and Monitoring/Reporting Guidelines). The U.S. Fish and Wildlife Service and the National Marine Fisheries Service staff conducted subtidal surveys at the sites that appeared to best meet the interagency guidelines. The subtidal survey reports and recommendations which are included as part of FEIS Appendix G, were used to further define which of the potential LTF locations were preferable. Table ROD-9 displays the LTFs involved in the various alternatives. See also the detailed alternative maps included with Upper Carroll FEIS.

Table ROD-9

Log Transfer Facilities Required, by Alternative and System

Name	Site No.	1	2	3	5	6	7	System
Shrimp Bay	1	N	I	N	I	N	N	A Frame
Shelter Cove	3	N	I	I	I	I	I	A Frame
Carroll Inlet No. 7	4*	N	N	I	I	I	I	Low Angle Ramp

SOURCE: Oien, 1996

I = Planned for intermittent use; N = Not planned for use.

*New Log Transfer Facilities

Table ROD-10 displays the number of LTFs used or developed, the total acreage of the structural embankment, and the estimated acres to be affected by bark deposition. The combination of the marine habitat covered by the structural embankment and the area potentially covered by bark deposition represents the total loss of marine benthic habitat for each alternative.

Table ROD-10

Marine Benthic Habitat Affected by Alternative

	Alt. 1	Alt. 2	Alt. 3	Alt. 5	Alt. 6	Alt. 7
Existing LTF Sites	2	2	2	2	2	2
Proposed New LTF Sites	0	0	1	1	1	1
Structural Embankment (Acres Affected)	0.5	0.5	0.7	0.7	0.7	0.7
Bark Deposition (Acres Affected)	2.0	2.0	3.0	3.0	3.0	3.0
Total Acres of Marine Benthic Habitat Affected	2.5	2.5	3.7	3.7	3.7	3.7

SOURCE: Oien, 1996

Note: Shrimp Bay and Shelter Cove LTFs are existing facilities. Therefore, the impacts to the marine environment have already occurred.

The No-action Alternative and Alternative 2 would have no measurable additional effect on the marine environment, while Alternatives 3, 5, 6, and 7 affect the marine system (3.7 acres) in a similar fashion. The loss of habitat is much less than one percent of the available marine habitat in the Project Area. Since all species identified along the subtidal (underwater) survey transects are common throughout Southeast Alaska, it is concluded that there would not be a significant impact to the marine environment from constructing (or continuing to use) LTFs at the proposed sites.

Highlights of the Selected Alternative (3) include the following:

- The one new LTF (Carroll Inlet) will be constructed at the location of a previously used LTF location, thereby helping to minimize additional impacts to the marine environment.
- The Carroll Inlet LTF meets the Alaska Timber Task Force siting guidelines and results in less upland and marine impacts than other potential sites, including a potential road connection back to Shelter Cove. All of the alternative sites were evaluated in detail, with the selected Carroll Inlet site being preferable for both economic and environmental reasons.
- All LTFs currently have marine dives conducted prior to construction, during use, and periodically following harvest to document and monitor effects on the marine environment.

Public Involvement

Public involvement has been instrumental in identifying issues, formulating alternatives, and influencing this decision. Public scoping and involvement activities for the Upper Carroll Project Area are listed in Chapter 1 and Appendix L of the FEIS. A summary of the significant issues was provided in a previous section of this ROD and in Chapter 1 of the FEIS.

Coordination With Other Agencies

From the time scoping was initiated, meetings and site visits with interested State and Federal agencies have occurred. Issues were discussed and information was exchanged.

Coordination meetings were held with the State of Alaska including the Department of Governmental Coordination, Department of Fish and Game, and the Department of Environmental Conservation. The Alaska Coastal Management Plan (ACMP) review process occurred between the DEIS and FEIS. The State of Alaska issued a consistency finding on August 2, 1996 (State I.D. No. AK 9605-04JJ). Based on the information contained in the DEIS and subsequent meetings, the State of Alaska agreed that the activities proposed in the Upper Carroll Project Area are consistent with the ACMP.

A Biological Assessment was prepared and sent to the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service as part of the Section 7 consultation under the Endangered Species Act.

The FEIS identifies the agencies who were informed of and/or involved in the planning process (see List of Agencies, Organizations, and Individuals to Whom Copies of this

Statement Were Sent). See also the discussion of subsistence in the section entitled "Findings Required by Law", later in this ROD.

Alternatives Eliminated From Detailed Consideration

A number of alternatives were examined, but not considered for detailed study in this EIS. This section summarizes those alternatives and the rationale for not considering them further. For a more complete description of these alternatives, refer to Chapter 2 of the FEIS.

Alternative A

Single Resource or Issue

Alternatives that focused solely upon one resource or issue were eliminated from consideration as implementable alternatives. While alternatives constructed around a single resource may not be implementable, the issue itself may still be significant. Each alternative was evaluated against all the significant issues.

Alternative B

Transportation/Utility Corridor between Ketchikan and the Project Area

The proposed road link and utility corridor are separate projects and independent from this FEIS. The road link project is not reasonably foreseeable. Ketchikan Public Utilities has awarded a contract to Foster Wheeler Environmental Corporation to complete an EIS for the proposed electrical intertie (including associated roads, if any) from Swan Lake to Lake Tyee. The preliminary preferred powerline route includes approximately 30 to 40 miles within the Upper Carroll Project Area. The two proposed actions appear to be similar because of the potential road locations and opportunity for cooperative agreements. The similar time lines could make the issue ripe for a decision as well. Alternative 2, looks at how much timber and associated Roads could be built and still meet Forest Plan standards and guidelines. The question as to how much of the transportation/utility corridor could be built is addressed for each alternative, with Alternative 2 serving as the upper level benchmark. A separate alternative, which maximizes road construction for the transportation/utility corridor is, therefore, unnecessary.

Alternative C

Avoid Previously Mapped Old-growth Retention Areas

Several commenters asked the Forest Service to analyze an alternative that would keep intact all previously mapped old-growth retention during this entry. Under the TLMP RSDEIS (1996a), 16 out of 19 land use designations preclude or severely restrict timber harvest, including the establishment of old-growth habitat reserves. The standards and guidelines for the remaining LUD's retain unaltered old-growth habitat in beach, estuary, and TTRA buffers, as well as in unsuitable commercial forest land. Previously mapped old-growth retention areas are consequently considered as part of the tentatively suitable and available timber base, unless otherwise excluded. Approximately 5,147 acres of retention were established as part of previous project level EISs.

The IDT examined the possibility of constructing an alternative which avoided all previously mapped old-growth retention areas. Due to the location and disjointed smaller patch size, it was impossible to construct an economically viable alternative which completely avoided existing retention with all roads and units. Many of the retention blocks were located at higher elevations, in low volume stands, were small and narrow, and did not logically connect to other high value areas. Current conservation biology theory places greater emphasis on larger blocks of old-growth which have logical connections for wildlife movement. This alternative was, therefore, not considered in detail. The effects of the alternatives on previously mapped old-growth areas are considered in Chapter 3.

Alternative D

Neets Bay/Orchard Lake Alternative

Several commenters asked the Forest Service to eliminate specific areas or individual units that were of concern to them. For example, the Southern Southeast Regional Aquaculture Association (SSRAA) operates the Neets Bay Fish Hatchery under special use permit from the Forest Service. A number of comments received indicated that the proposed harvest in Neets Bay would pose a sedimentation risk to the fish hatchery operation. A citizen's alternative recommended dropping the Neets Bay harvest units and making up the volume from the Orchard Lake area.

Harvesting in the Orchard Lake area was not considered because: (1) it is a recommended semi-remote recreation area under the Revised TLMP Revision Supplement to the Draft EIS, Alternative 3; (2) Orchard Lake and Creek have been determined to be eligible for possible inclusion in the National Wild and Scenic Rivers System; and (3) it is outside the Project Area boundary.

Concern about sedimentation from timber harvest and associated roads was addressed in various ways. Alternatives 3, 6 and 7 do not propose any harvest in the Neets Creek watershed, while Alternatives 2 and 5 propose distinctly different levels of harvest and road construction within the watershed. A watershed analysis which looks at sedimentation risk was conducted for both the Neets Creek and Carroll Creek drainages (see FEIS Chapter 3). Forest Service standards and guidelines, as well as BMPs to protect soil and water quality, apply to all alternatives.

Alternative E

Helicopter Logging Alternative

Public comments expressed a concern for the effects of road and LTF construction on the marine environment as well as the Carroll Creek estuary, water quality, fisheries, and subsistence values. Alternative E in the Upper Carroll DEIS was originally developed as a project alternative by the IDT but eliminated from detailed study due to poor economic returns and not meeting the project's stated purpose and need.

In conversations with members of the Ketchikan Indian Corporation's subsistence board the Forest Service received clarification regarding new roads versus existing roads. The primary concern was to avoid the construction of new roads to limit additional subsistence impacts. The ability to re-construct the existing roads is critical to the viability of this alternative, since it reduces the yarding/flight distances by several miles. This is due to the fact that the shallow water in Carroll Estuary prohibits the placement of a barge closer than the proposed LTF location used in the other alternatives. The reconstruction of the existing roads results in additional volume and improved economics.

Alternative E from the DEIS has been modified as described above and is considered for detailed study in the FEIS as Alternative 7.

Alternative F

"Fishermen's Alternative"

The proposed "Fishermen's Alternative" was evaluated by the Upper Carroll IDT. Constraints applied by the commenter were that no harvesting occur north of , and including Unit No. 49 (FEIS) (first drainage to the east of Carroll Creek). The alternative would need to meet proportionality, which would be very difficult because all of the remaining units in VCU 744 but one are composed of high volume stands. The constructed alternative would have resulted in approximately six MMBF of harvest in Management Area K32 (VCU 744) and approximately one to two MMBF in Management Area K35 (VCU 746).

This alternative was considered but eliminated from detailed study because:

- it does not address any significant issues in a way that is meaningfully different;
- the economic viability is hampered by the low volume to spread fixed costs against;
- the alternative does not respond to the underlying purpose and need for the project (40 CFR 1502.13).

Alternative G

In public comments received on the DEIS, Alternatives 3 and 4 received a considerable amount of support from individuals and agencies who emphasize the protection of water quality, fisheries and wildlife habitat. Fewer acres of timber harvest, less road construction, avoiding impacts to the SSRAA facility and the west side of Carroll Creek were commonly mentioned reasons. Most of the commenters indicated that they saw little difference between Alternatives 3 and 4, but preferred Alternative 3 because it constructed less road, harvested fewer acres of old-growth timber, and was economically more efficient.

In the DEIS, Alternative 4 harvested the northern portion of VCU 744 while Alternative 3 did not. Additional analysis after the DEIS resulted in Units 75 and 129 being deleted for low volume (less than 8 MBF/acre). As a result, Units 15 and 108 located adjacent to the units listed above could no longer support the roading costs associated with providing access. The end result being that Alternatives 3 and 4 would have had no meaningful difference if both were carried forward to the FEIS.

DEIS Alternative 3 plus Units 73, 74, 130, 131 and 132 (approximately 3.5 MMBF) from Alternative 4 will be presented in the FEIS as Alternative 3. Alternative 4 has been eliminated from further detailed study.

Alternatives Considered for Detailed Study

Six alternatives for making timber available to KPC and/or the Ketchikan Area Independent Timber Sale Program from the Upper Carroll Project Area were considered in detail. Each alternative is consistent with the TLMP (1979a, as amended) and the Preferred Alternative of the TLMP RSDEIS (1996a). For each alternative this section provides a discussion of: (1) the emphasis or intent of the alternative, and (2) various resource outputs associated with implementation. **Alternatives are compared in detail later in this ROD and summarized in Table ROD-11.**

Alternative 1 (No Action)

Emphasis

The emphasis of this alternative is to propose no new timber harvest from the Upper Carroll Project Area at this time. It does not preclude timber harvest from other areas at this time, or from the Upper Carroll Project Area at some time in the future. The Council of Environmental Quality (CEQ) regulations 40 CFR 1502.14d requires a "No Action" alternative be analyzed in every EIS to serve as a benchmark by which effects of the other action alternatives are to be measured. The Existing Condition map (Alternative 1), shows the distribution of vegetation associated with no new timber harvest.

Outputs

There are no new timber harvest outputs associated with this FEIS alternative. Visual quality, wildlife habitat quality, semi-primitive recreation opportunities, as well as other resource values would remain at their current condition.

Alternative 2

Emphasis

The emphasis of this alternative is to accelerate progress toward the desired future condition for timber management while meeting Forest Plan Standards and Guidelines for other

resources. Timber volume made available to local timber purchasers is maximized this entry under this alternative. This alternative is designed to evaluate the effects of harvesting as much of the Project Area as possible in a combination that still meets standards and guidelines. This alternative serves as an upper level benchmark that can be used to project the cumulative effects of the reasonably foreseeable future activities (see FEIS Appendix A) within the Project Area. Another feature of this alternative is that it looks at the maximum amount of road that could be constructed as part of a commercial timber sale that could be used to facilitate the development of a potential transportation/utility intertie within the Project Area. The environmental effects and cost of a road connection between Shelter Cove and Carroll Inlet have been incorporated into this alternative

Outputs

Implementation of this alternative would schedule the harvest of 1,996 acres, in 72 harvest units for approximately 61 MMBF of sawlog and utility volume, indicating an average unit size of 27.7 acres. Of this harvest, 13 units totaling 332 acres are planned for partial cut; the remainder are planned for clearcut harvest. To implement this level of harvest, 61 miles of new road would be constructed, and 7 miles of existing road would require reconstruction. Road construction clearing will yield an additional 3 MMBF of right-of-way (ROW) volume. This indicates an average of 1.1 MMBF per mile of new road construction and a total of 0.9 MMBF per mile of road. It schedules 368 acres or 11.2 MMBF of volume for helicopter yarding. Preliminary analysis indicates a net mid-market stumpage value of -\$158.40 per MBF. This alternative would result in approximately 31.9 miles of road located within a proposed transportation corridor or 23.2 miles within a utility corridor that could facilitate its future construction and/or maintenance.

The use of two existing LTFs will be required to implement this alternative. Floating or land based logging camps are anticipated with the Shelter Cove and Shrimp Bay LTFs. The road connection between Shelter Cove and Carroll Inlet would eliminate the need for the Carroll Inlet LTF and floating log camp. The Alternative 2 map provides the spatial relationship among roads, units and other geographic features of the Upper Carroll Project Area.

Alternative 3

Emphasis

The objective of this alternative is to emphasize timber economics and conventional cable yarding methods. The location of harvest units, selection of silvicultural prescriptions, logging systems, and a transportation network is primarily based on maximizing the mid-market value. This entry proposes only limited helicopter timber harvest. This approach emphasizes a positive net economic return for the proposed harvest units, by avoiding the low and very low economic zones. Due to the juxtaposition of the landscape management zones within the Project Area, this alternative minimizes impacts to old-growth habitat blocks, late-successional corridors, riparian habitat, fens, and avoids the SSRAA Fish Hatchery in Neets Bay, and the west side of Carroll Creek. Road development within the transportation/utility corridor would be minimized as a consequence of harvesting a lesser amount of timber and constructing fewer miles of road.

Outputs

Alternative 3 schedules the harvest of 40 individual harvest units, totaling 33 MMBF of sawlog and utility volume from 1,074 acres, indicating an average unit size of 26.9 acres. Of this harvest, three units totaling 15 acres are planned for partial cut; the remainder are planned for clearcut harvest. This alternative requires the construction of 21 miles of new specified roads plus four miles of reconstruction. Road construction clearing will yield an additional 1 MMBF of right-of-way (ROW) volume. This indicates an average of 1.6 MMBF per mile of new road construction and a total of 1.4 MMBF per mile of specified road. It schedules 51 acres or 1.3 MMBF of volume for helicopter yarding. Preliminary analysis indicates a net mid-market stumpage value of +\$19.06 per MBF. This alternative would result in approximately 4.2 miles of road located within a proposed transportation corridor or 6.5 miles

within a utility corridor that could potentially facilitate its future construction and/or maintenance.

The development of one new Log Transfer Facility (LTF) and one existing LTF will be required to implement this alternative. Floating or land based logging camps are anticipated with the Shelter Cove and Carroll Inlet LTFs. The Alternative 3 map provides the spatial relationship among roads, units, and other geographic features of the Upper Carroll Project Area.

Alternative 5

Emphasis

The emphasis of this alternative was to have met the stated Purpose and Need while responding to public comments to avoid road construction in Neets Bay. This will be accomplished by helicopter logging the units to the north of the SSRAA facility and dropping the remaining roaded access units located further up-stream from the SSRAA fish hatchery. This alternative differed from Alternative 2 in that less volume would have been harvested, no road construction occurred in the Neets Bay Drainage (VCU 737), no harvest occurred in the Naha large old-growth block, and the road tie from Shelter Cove to Carroll Inlet would not be constructed.

Outputs

Alternative 5 scheduled the harvest of 60 individual harvest units, totaling 51 MMBF of sawlog plus utility volume from 1,618 acres, indicating an average unit size of 27.0 acres. Of this harvest, 15 units totaling 252 acres were planned for partial cut; the remainder were planned for clearcut harvest. This alternative required the construction of 40 miles of new specified roads plus eight miles of reconstruction. Road construction clearing would have yielded an additional 2 MMBF of right-of-way (ROW) volume. This indicated an average of 1.3 MMBF per mile of new road construction and a total of 1.1 MMBF per mile of specified road. It schedules 393 acres or 13 MMBF of volume for helicopter yarding. Preliminary analysis indicates a net mid-market stumpage value of -\$53.64 per MBF. This alternative would result in approximately 6.8 miles of road located within a proposed transportation corridor or 8.9 miles with a utility corridor that could potentially facilitate its future construction and/or maintenance.

The development of one new Log Transfer Facility (LTF) and two existing LTFs would have been required to implement this alternative. Floating or land based logging camps are anticipated with the Shelter Cove, Shrimp Bay and Carroll Inlet LTFs. FEIS Alternative 5 map provides the spatial relationship among roads, units, and other geographic features of the Upper Carroll Project Area.

Alternative 6

Emphasis

The emphasis of this alternative was to meet the stated purpose while responding to public comments to minimize or avoid impacts to goat winter range, the SSRAA Fish Hatchery, and the west side of Carroll Creek. This alternative would have avoided road construction in the old-growth block located on the west side of Carroll Creek through the use of helicopter yarding. Neets Creek drainage (including the SSRAA Fish Hatchery) and potential goat winter range would have been completely avoided.

Outputs

Alternative 6 scheduled the harvest of 42 individual harvest units, totaling 32 MMBF of sawlog plus utility volume from 1,032 acres, indicating an average unit size of 24.6 acres. Of this harvest, five units and 100 acres were planned for partial cut; the remainder were planned for clearcut harvest. This alternative required the construction of 19 miles of new specified roads plus four miles of reconstruction. Road construction clearing would have yielded an additional 1 MMBF of right-of-way (ROW) volume. This indicated an average of 1.7 MMBF per mile of new road construction and a total of 1.4 MMBF per mile of road. It scheduled 288

acres or 9.0 MMBF of volume for helicopter yarding. Preliminary analysis indicated a net mid-market stumpage value of -\$8.64 per MBF. This alternative would have resulted in approximately 6.8 miles of road located within a proposed transportation corridor or 8.9 miles within a utility corridor that could have potentially facilitated its future construction and/or maintenance.

The development of one new Log Transfer Facility (LTF) and one existing LTF would have been required to implement this alternative. Floating or land based logging camps were anticipated with the Shelter Cove and Carroll Inlet LTFs. The Alternative 6 map provides the spatial relationship among roads, units, and other geographic features of the Upper Carroll Project Area.

Alternative 7

Emphasis

The emphasis of this alternative was to meet the stated purpose while responding to public comments to avoid new road construction and utilize helicopter yarding. Under this alternative the existing road in Carroll Creek would have been reconstructed to minimize helicopter yarding costs. Avoiding new road construction addressed the subsistence, fisheries, and wildlife issues of roaded access differently than standard road closures. The Naha and West Carroll old-growth blocks received a light entry under this alternative. Development of the transportation/utility corridor would have been minimized as a consequence of only reconstructing the existing roads.

Outputs

Alternative 7 scheduled the harvest of 24 individual harvest units, totaling 19 MMBF of sawlog plus utility volume from 591 acres, indicating an average unit size of 24.6 acres. Of this harvest, three units and 37 acres were planned for partial cut; the remainder were primarily planned for Type II clearcut harvest. This alternative required the reconstruction of four miles of specified roads. Road reconstruction clearing would have yielded no right-of-way (ROW) volume. It scheduled 540 acres or 17.1 MMBF of volume for helicopter yarding with the Shelter Cove area (VCU 746) continuing to be cable logged from the existing road system. Preliminary analysis indicated a net mid-market stumpage value of -\$17.43 per MBF. This alternative would have resulted in approximately 0.4 miles of road located within a proposed transportation corridor or 2.7 miles within a utility corridor that could have potentially facilitated its future construction and/or maintenance.

The development of one new Log Transfer Facility (LTF) and one existing LTF would have been required to implement this alternative. Floating or land based logging camps were anticipated with the Shelter Cove and Carroll Inlet LTFs. The Alternative 7 map provides the spatial relationship among roads, units, and other geographic features of the Upper Carroll Project Area.

Table ROD-11 displays a summary comparison of the anticipated consequences of each of the alternatives including the Selected Alternative. It is presented by resource as in Chapter 3 of the FEIS.

Table ROD-11
Summary Comparison of Alternatives

Activity/Resource	Units	1	2	Alternatives			
				3	5	6	7
Timber							
Units	Number	0	72	40	60	42	24
Estimated harvest unit volume	MMBF	0	61	33	51	32	19
Estimated right-of-way (ROW) volume	MMBF	0	3	1	2	1	0
Partial cut (shelterwood)	Acres	0	332	15	252	100	37
Clearcut harvest	Acres	0	1,664	1,059	1,366	932	554
Total harvest	Acres	0	1,996	1,074	1,618	1,032	591
Units over 100 acres	Number	0	1	1	2	0	0
Shovel harvest	MMBF	0	1.3	0.9	1.0	0.8	0.2
Running Skyline	MMBF	0	44.2	29.3	33.9	21.6	1.2
Live Skyline (Shotgun)	MMBF	0	3.1	1.2	2.6	0.9	0
Slackline harvest	MMBF	0	1.4	0	0.7	0	0
Helicopter harvest	MMBF	0	11.2	1.3	12.7	9.0	17.1
Estimated stumpage (mid-market rates)	\$ / MBF	0	-158.40	+19.06	-53.64	-8.64	-17.43
Estimated stumpage (current rates)	\$ / MBF	0	-137.42	+51.05	-33.50	+9.26	-0.43
Receipts to State of Alaska	\$M	0	3,318	2,208	2,915	1,758	118
Average annual jobs over 4 years	# of jobs	0	119	65	99	63	36
Proportionality Remaining (K32 - TTRA Base 8.82%)	Percent	8.95	8.87	8.84	8.82	8.88	8.88
Proportionality Remaining (K35 - TTRA Base 5.39%)	Percent	5.54	5.55	5.55	5.54	5.54	5.55
Roads & Transportation							
Specified road construction	Miles	0	61.2	21.1	39.8	19.3	0.0
Road reconstruction	Miles	0	6.6	3.7	7.9	3.7	3.7
Temporary road construction	Miles	0	10.9	7.4	10.2	5.2	0.5
New Log Transfer Facilities	Each	0	0	1	1	1	1
Reconstruction/Use of existing Log Transfer Facilities	Each	0	2	1	2	1	1
Roads crossing Class I or II streams	Number	0	40	22	34	23	9
Transportation/Utility Corridor							
Transportation Corridor (32-45 miles)	Miles	0	31.9	4.2	6.8	6.8	0.4
Utility Corridor (25 miles)	Miles	0	23.2	6.5	8.9	8.9	2.7
Road Connection from Shelter Cove to Carroll Creek	Response	No	Yes	No	No	No	No
Road Connection from Carroll Creek to Neets Creek Road	Response	No	Yes	No	No	No	No
Road Connection from Carroll Creek to Shrimp Bay	Response	No	Yes	No	No	No	No
Biodiversity							
Unfragmented old-growth patches remaining							
1,000 Acres and larger	Acres	11,735	4,563	7,135	4,494	7,940	7,724
500-1,000 Acres	Acres	2,270	5,881	4,381	6,282	4,058	4,601
100-500 Acres	Acres	2,243	3,492	3,329	3,607	2,920	3,027
Naha old growth habitat - large block	Acres harvested	0	48	0	0	0	48
Carroll Creek old growth habitat - small block	Acres harvested	0	302	0	317	237	43
Corridors connecting old growth blocks (2,737 acres)	Acres harvested	0	73	25	60	60	1
Old growth acres remaining in Project Area	Acres	17,641	15,644	16,567	16,023	16,609	17,050
Percent of original old-growth remaining	Percent	81	72	76	74	77	79
Wildlife - Project Area							
1997 MIS - deer	Habitat capability	389	357	371	364	367	376
1997 MIS - bear	Habitat capability	70	66	67	67	67	68
1997 MIS - marten	Habitat capability	45	40	42	41	42	43
1997 MIS - river otter	Habitat capability	17	16	16	16	16	16
1997 MIS - hairy woodpecker	Habitat capability	341	303	320	311	318	325
1997 MIS - Vancouver Canada goose	Habitat capability	74	67	68	67	68	69
1997 MIS - bald eagle	Habitat capability	40	40	40	40	40	40
1997 MIS - brown creeper	Habitat capability	497	444	468	455	468	477
1997 MIS - red squirrel	Habitat capability	22,714	21,226	21,890	21,554	21,858	22,178
1997 MIS - gray wolf	Habitat capability	1.1	1.0	1.1	1.0	1.1	1.1
1997 MIS - goat winter range (2044 acres)	Acres harvested	0	229	274	229	71	30
Subsistence - WAAs 406 and 510							
Deer Habitat Capability (percent of 1954)	Percent	81	81	81	81	81	81
Deer Population Needed to Support Current Harvest (percent of 1954)	Percent	19	19	19	19	19	19

Record of Decision

Table ROD-11 (continued)
Summary Comparison of Alternatives

Activity/Resource	Units	Alternatives					
		1	2	3	5	6	7
Significant Possibility of a Significant Restriction							
Deer	Response	No	No	No	No	No	No
Bear	Response	No	No	No	No	No	No
Furbearers	Response	May	May	May	May	May	May
Salmon	Response	No	No	No	No	No	No
Other Finfish	Response	No	No	No	No	No	No
Waterfowl	Response	No	No	No	No	No	No
Marine Mammals	Response	No	No	No	No	No	No
Indirect and Cumulative Effects of Implementing the Forest Plan over the entire rotation	Response	May	May	May	May	May	May
Cultural Resources							
Impacts to known cultural resources	Response	No	No	No	No	No	No
Watershed and Fisheries							
Fens (watershed assessment) 1,192 acres	Acres harvested	0	0	0	0	0	0
Riparian habitat (watershed assessment) 1,912 acres	Acres harvested	0	0	0	0	0	0
Neets Creek Watershed (contains SSRAA Fish Hatchery)							
Acres of harvest	Acres	0	366	0	201	0	0
Miles of road construction and reconstruction	Miles	0	17	0	0	0	0
Harvest unit acres with high potential for sediment delivery to Neets Creek	Acres	0	26	0	26	0	0
Road miles with high potential for sediment delivery to Neets Creek	Miles	0	1.2	0	0	0	0
Carroll Creek Watershed							
Acres of harvest	Acres	0	1,581	1,025	1,397	1,020	541
Miles of road construction and reconstruction	Miles	0	45	25	33	23	4
Harvest unit acres with high potential for sediment delivery to Class I streams	Acres	0	192	142	192	86	0
Road miles with high potential for sediment delivery to Class I streams	Miles	0	6.2	2.3	5.5	0.8	0.0
Soils							
Very high mass movement	Acres harvested	0	0	0	0	0	0
High mass movement	Acres harvested	0	520	245	455	231	107
Medium mass movement	Acres harvested	0	1,156	679	973	655	350
Low mass movement	Acres harvested	0	320	150	190	146	135
Wetlands harvested/roaded	Acres	0	386	70	275	231	66
Total Karstlands in each Alternative	Acres	0	0	0	0	0	0
Visual Quality							
Consistent with Forest Plan Objectives							
Carroll Inlet at Shelter Cove - VCU 746	Response	Yes	Yes	Yes	Yes	Yes	Yes
Carroll Estuary - VCU 744	Response	Yes	Yes	Yes	Yes	Yes	Yes
Head of Neets Bay - VCU 737	Response	Yes	Yes	Yes	Yes	Yes	Yes
Roadless Areas							
Change in ROS class from SPNM to RM	Percent	0	22	13	17	10	4
Roadless areas	Acres (M)	34,413	24,925	30,217	27,440	29,954	34,413

Source: Nightingale 1996

Environmentally Preferred Alternative

There is no single factor that can be used to determine which alternative is environmentally preferred. Maintaining the basic productivity of the land and the quality of lifestyle of the local residents are vitally important.

Alternative 1, the No-Action/No Further Harvest alternative, would cause the least environmental disturbance and is therefore the environmentally preferred alternative. This is based on the comparison of all the alternatives shown in the Table ROD-11 and as displayed in Chapter 3 of the FEIS.

All alternatives considered in detail have varying levels of environmental effects depending on what issue is addressed. The Selected Alternative and Alternative 7 would cause the least adverse environmental effects. The Selected Alternative has significantly less effects for most resources due to building less road, deferring harvest in significant old-growth blocks, and crossing fewer large streams. Alternative 7 also has significantly less effects for most resources due to no new road building (reconstruction of existing road only), and having the least impact on areas identified with subsistence use and fisheries concerns. However, Alternative 7 does not defer harvest in units located in the West Fork of Carroll Creek as well as the portion of the Naha which is designated as LUD IV.

Administrative Record

The Administrative Record for this project includes the Draft EIS, Final EIS, Tongass Land Management Plan (1979a), TLMP RSDEIS (1996a), Alaska Regional Guide, and all material incorporated by reference including the planning record.

Mitigation

Mitigation measures are prescribed to avoid, reduce, minimize, or eliminate the adverse affects of actions. These measures were applied in the development of the project alternatives, including the Selected Alternative, and in the design of the harvest units and road corridors. The Mitigation Measures section of Chapter 2 of the FEIS discusses the mitigation measures for all alternatives.

Mitigation measures applicable to the Selected Alternative include those contained in the Standards and Guidelines of the Tongass Land Management Plan (1979a), TLMP RSDEIS (1996a) Preferred Alternative, Alaska Regional Guide, and applicable Forest Service Manuals and Handbooks. The ROD Appendices 2 and 3 include Unit Design and Road Cards which incorporate site-specific mitigation and are adopted as part of this decision. Integrated silvicultural prescriptions will be developed which will further specify mitigation direction for each unit.

All practical measures have been adopted to avoid or minimize adverse environmental effects of the Selected Alternative. Measures have been included to protect, enhance, and restore resources affected by timber harvest and related actions. The Forest Service has the authority, through the timber sale contract and other permit requirements or authorities, to enforce and implement adopted mitigation measures and monitoring necessary to ensure the effectiveness of the mitigation. The following mitigation measures are authorized for application to the Upper Carroll Project Area.

Water Quality, Fish Habitat, Wetlands

Mitigation to protect water quality, fish habitat, and wetlands includes application of the Best Management Practices (BMPs) stated in the Soil and Water Conservation Handbook (USDA FSH 2509.22). This handbook provides standard operating procedures for all stream classes. In addition, the TTRA mandates a minimum 100-foot buffer on all Class I streams and on Class II streams that flow directly into Class I streams. The width of this buffer strip may be greater than 100 feet for reasons such as topography, riparian soils, a windfirm boundary,

timber stand boundaries, logging system requirements, and varying stream channel locations. In addition, certain Class III streams flow directly into or have been identified as influencing Class I streams. These Class III streams have been buffered to the slope break of the channel or to a windfirm boundary to protect water quality. Split yarding or full suspension was built into the logging and transportation design process, as was partial and full suspension over wetland soils or soils with a higher mass movement potential. Direct in stream impacts are minimized through road construction timing and fish passage requirements on certain Class I and II streams. Refer to FEIS Appendix F (Watershed Report) for the rationale and to ROD Appendices 2 and 3 (Unit Design and Road Cards) for the unit-specific stream buffering, suspension, passage, and timing requirements being applied. Application of BMPs and adherence to the TTRA requirements will protect water quality fish habitat and wetlands as well as riparian habitat important to other species such as deer, bear, and furbearers.

Anadromous Fish Habitat

Class I anadromous streams will receive a minimum 300-foot no-cut buffer. Where practical, roads, tail holds, and guy-circles will be located outside this stream buffer.

Beach Fringe and Estuaries

Beach fringe and estuaries will receive 500-foot and 1,000-foot no-cut buffers respectively. When practical, roads, tailholds, and guy-circles will be located outside these buffers.

Temperature Sensitive Streams

While required buffers will mitigate most temperature sensitivity concerns, there still is concern about providing topographic shading to Class III streams that flow through harvest units. FEIS Unit 16 (ROD Unit No. C23) has characteristics (south aspect, lack of immediate downstream forested stream buffers, historical, and continued harvest activities, etc.) that may contribute to the temperature sensitivity of nearby streams. Following completion of the watershed analysis, buffers were placed on streams as needed to meet water quality objectives including water temperature.

Cavity and Snag-dependent Wildlife

Provide habitat requirements for cavity and snag-dependent wildlife species by retaining reserve trees within all land use designations as outlined in the TLMP RSDEIS (1996a). To provide for adequate distribution of snags within VCUs which have marginal numbers of snags, the following units will have small 0.1 acre (or larger) snag patches distributed throughout the unit at a rate of 0.1 acre per 10 acres of unit. The location of these snag patches will be determined during layout or sale administration, and will be designed in such a fashion as to not impose undue safety hazards on logging contractors.

Guidelines for placement of snag patches and old-growth islands include:

- Areas where wildlife use is concentrated (determined during reconnaissance).
- Selected areas should be at least 100 feet away from unit boundary (unless the unit boundary is an existing second-growth stand; then the patch or island can be placed along the unit boundary).
- Patches or islands can be placed along split yard sections of harvest units, particularly split yard streams.
- Snag patches or old-growth islands can be incorporated into stream buffers.
- Snag patches or old-growth islands can be placed along boundaries of muskegs.

FEIS Unit 20 (ROD Unit C13) will employ these snag recruitment techniques.

Goshawks

Region 10 goshawk management guidelines in effect at the time of unit release will be followed. Goshawk guidelines in the TLMP RSDEIS (1996a) call for maintaining the following conditions:

Nest Stand—Maintain an area of at least 25 acres around the confirmed nest tree (and probable nest tree if identified) and attempt to include prey handling areas, perches, and roosts. Vegetative structure objectives generally include a multi-layered, closed (over 60 percent) forest canopy, a relatively open understory, with large trees (usually greater than 20 inches DBH) and low ground vegetation. These structural characteristics generally equate to Volume Class 5 and higher in the timber resource inventory.

Management—No vegetative manipulation or new road construction is permitted. Existing roads may be maintained. Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. Activity restrictions are removed for active nests that become inactive or unsuccessful.

Nesting Habitat—Maintain an area of not less than 75 acres surrounding the nest stand (total management of 100 acres). Include inactive nest stands, hiding cover and foraging opportunities for young goshawks. Vegetative structure is similar to the nest stand but may include some intermediate canopy (e.g. Volume Class 4).

Management—No commercial timber harvest is permitted within the nesting habitat. New road construction is permitted (outside the nest stand) if no other reasonable roading alternatives outside the mapped nesting habitat exist.

A recent sighting of a goshawk was made during field reconnaissance of a portion of the West fork of Carroll Creek (this is within the boundary of the old-growth small habitat reserve block). The area has since been revisited in an attempt to establish the location of a potential nesting site. Although a nest was not located, the area will continue to be monitored for goshawk activity. All new nests discovered during field reconnaissance or unit layout will be protected by implementing the above measures or the Region 10 goshawk management guidelines in effect at the time of unit release.

Marbled Murrelets

Due to the limited information available on nesting habitat requirements of marbled murrelets, any nests located during field reconnaissance or unit layout will be assessed on a case-by-case basis.

A 600-foot, generally circular, radius of undisturbed forest habitat surrounding identified murrelet nests will be maintained. Disturbance activities within this buffer will be minimized during the nesting season (May 1 to August 15). The Buffer zone will be maintained and the site monitored for nesting activity for not less than two nesting seasons after nest discovery. The buffer protection may be removed if the site remains inactive for two or more consecutive nesting seasons.

Trumpeter Swans

Timber harvest units that are within a half mile of Carroll Inlet estuary will allow harvest and road construction activities from April 1 to October 31. During the remainder of the year harvest and road construction may occur if swans are not present. This affects the following ROD units:

ROD Unit No.	Corresponding FEIS Unit No.
C07	35 and 38
C08	3, 27, and 28
C09	40 and 41
C11	47 and 49

Log transportation (hauling) and LTF operation within a half mile of Carroll Creek estuary would be prohibited during January and December of each year.

Bald Eagle Nests

Road construction activities that are within a half mile of bald eagle nests will usually have blasting restricted to the period of September 1 to February 28. If the nest is unoccupied, normal blasting procedures are also permitted from June 1 to August 31, if there is no direct danger to eagles, nests, eagle nest trees, or other eagle habitat elements. Blasting within one-half mile of an active eagle nest is only allowed if: (1) the blasting can be accomplished in accordance with the requirements of the Bald Eagle Protection Act; (2) written coordination with the U.S. Fish and Wildlife Service has occurred; and (3) the results of the interagency coordination is documented.

Whale Habitats

The following Forest-wide standards and guidelines have been developed for application on all Forest Service permitted or approved activities and have been incorporated by reference into the Upper Carroll DEIS from the TLMP RSDEIS (1996a):

- Provide for the protection and maintenance of whale habitats.
- Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales, dolphins, and porpoise.

Marine Mammals

Forest-wide standards and guidelines direct the Forest Service to prevent and/or reduce potential harassment of sea lions and other marine mammals due to activities carried out by or under the jurisdiction of the Forest Service. These have been incorporated by reference into the Upper Carroll FEIS from the TLMP RSDEIS (1996a). These Forest-wide standards and guidelines to provide for protection and maintenance of harbor seal, Steller sea lion, and sea otter habitats are as follows:

1. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act and the Endangered Species Act.
2. Locate facilities and concentrated human activities requiring Forest Service approval as far from known marine mammal haulouts, rookeries and known concentration areas as practicable. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:
 - Facilities, camps, LTFs, campgrounds and other developments should be located one mile from known haulouts and farther if the development is large.

- Individuals associated with Forest Service permitted or approved activities will not intentionally approach within 100 yards, or otherwise intentionally disturb or displace any hauled-out marine mammal.

Waterfowl

The standards and guidelines for waterfowl from the TLMP RSDEIS (1996a) are incorporated by reference into the Upper Carroll EIS. Significant waterfowl areas include Carroll Inlet Estuary and Neets Bay. These habitats will be maintained through the protection of the 1000-foot estuary buffer. Activities are located as far from these areas as feasible. Disturbance to waterfowl will be minimized by the mitigation for protecting trumpeter swans (see above).

Heron and Raptor Nest Protection

- Any active heron rookeries or raptor nests will be protected with a 600-foot windfirm buffer of old-growth habitat. Disturbance will be minimized during the active nesting season (generally March 1 to July 31) on a case by case basis.
- The nests will be monitored annually for two years after discovery of the active nest. If the nest remains inactive for two consecutive years, protection measures for the site will be removed.

Alexander Archipelago Wolf

- A 600-foot windfirm buffer will be maintained around active wolf dens. Road construction within the buffer will be discouraged and alternate routes explored.
- The den will be monitored for at least two consecutive years and if the den becomes inactive, then buffer restrictions can be removed.

Mountain Goat

- Aircraft flights, including helicopter yarding of timber, will seek to avoid mountain goat kidding areas from May 15 through June 15. Flights should maintain a 1,500-foot vertical or horizontal distance from traditional summer and kidding areas and animals.
- Restrict blasting within one mile of known mountain goat kidding areas from May 15 through June 15.

Subsistence

Because most subsistence use involves harvesting fish and game, mitigation measures that protect or enhance fish and game resources will also protect and enhance subsistence activities. By placing units and roads away from beach and estuary fringe habitats, and away from salmon bearing streams, mitigation measures were built into each of the alternatives considered in the FEIS. Road management objectives (closures) were also heavily influenced by the desire of subsistence hunters to limit access.

Scenic Quality

Effects of timber harvest on views from anchorages and known recreational day use areas have been reduced by leaving buffers of timber along the beaches and inland lakes. The adopted visual quality objectives for this plan emphasize the protection of the visual resource as viewed from saltwater, particularly in Carroll Inlet. Protecting these viewsheds will reduce the direct effects on visual quality. Stream riparian buffers will protect fisheries habitat and sport anglers use of Class I and II streams in the Project Area.

Cultural Resources

Potential effects on cultural resources have been minimized by excluding project activities from most high probability areas (exceptions are LTFs, camps, a small number of units, and access roads to these facilities). The high probability areas were all surveyed in 1994 and 1995, except for exact road locations which cannot be precisely determined until after unit and road layout occurs. Types of mitigation measures include avoidance, protective enclosures, monitoring of harvest activities, restrictions on size or road location, and recovery and documentation of materials.

Sensitive Plants

Choris Bog Orchid (*Platanthera chorisana*) is a designated sensitive species. Six populations of this species were discovered in muskeg openings during botanical surveys of the Project Area conducted in 1995. Populations were found within the vicinity of FEIS Units 20 and 59 (ROD Units C13 and C19) and adjacent to a small pond in the Carroll Creek drainage. The primary risk of perturbation to these populations will be through road construction activities. Road locations have been adjusted to avoid direct impacts to known locations of Choris Bog Orchid.

Fisheries

Design stream crossings to provide fish passage for anadromous and resident fishes. This applies to proposed new road construction or major road reconstruction crossing Class I and II streams. (See ROD Appendices 2 and 3, Unit Design and Road Cards.)

Time road construction activities within all Class I and some Class II streamcourses to protect spawning adult fish and their eggs and fry from disturbance. This means instream road construction activities must be conducted during time periods that would not cause reductions in egg or fry survival or disturb spawning adults. Generally road construction activities adjacent to streams will be restricted to the time period May 15 to August 15.

Split yard or fully suspend logs on all identified streamcourses that require additional protection to maintain streambank stability and prevent stream sedimentation.

Soils

Reduce the potential for landslides by providing for full bench road construction and end haul of waste in areas with very high potential for mass movement, as well as in other areas as determined by geotechnical engineers.

Another means of reducing the landslide potential is to maintain partial log suspension on all slopes with high mass movement potential. Ground disturbance should not exceed 10 percent.

Log Transfer Facilities

For National Forest permitted LTFs, the grade of the working surface shall be constructed to back drain water away from the working face toward filter strips or collection/settling basins. Clean up of bark and debris will occur on a frequent basis in accordance with the necessary EPA permits.

Regeneration

It is desirable to maintain the cedar component in stands where it naturally occurs. Because cedar tends to regenerate poorly following clearcut harvest in some stands, it is desirable to not harvest the mature cedar but to retain that vegetative structure for biodiversity and to establish cedar regeneration. Silvicultural methods such as seed tree or shelterwood harvest are appropriate to meet specific resource objectives. Areas identified to be best suited for cedar regeneration include units within the cedar or mixed conifer plant association that are proposed for helicopter yarding and have either elevations over 1,200 feet (on north and east aspects) or over 1,500 feet (on south and west aspects). Specific units or parts of units

identified as meeting this criteria include approximately 15 acres in FEIS Units 35, 38, and 74 (ROD Units C07 and C28).

Problems establishing adequate natural regeneration because of aspect or indigenous plant association may be mitigated by supplemental hand planting. Hand planting will be done on approximately 198 acres or as necessary within units identified in FEIS Appendix I to insure regeneration within five years after timber harvest as required under NFMA.

Caves/Karst

There are no known occurrences of carbonate rock (Berg 1988) and associated cave resources within the Project Area. Field reconnaissance also failed to identify any occurrences in this area.

The potential for identifying significant cave resources within the Project Area during implementation is extremely low. However, if cave resources are identified that may be affected by the proposed activities, the cave/karst mitigation measures in effect at that time will be applied.

Monitoring and Enforcement

A monitoring program is the process by which the Forest Service can evaluate whether or not the resource management objectives of the FEIS have been implemented as specified and whether or not the steps identified for mitigating the environmental effects were effective. Three levels of monitoring are recognized. The first level or implementation monitoring is generally feasible at the project level. The second level or effectiveness monitoring is generally conducted on an Area-wide basis, however some project specific effectiveness monitoring is occasionally conducted to address specific needs (see FEIS Chapter 2 - Monitoring). The third level, validation monitoring, is conducted at the Regional or forest-wide level.

One major objective of this strategy is to do initial implementation and effectiveness monitoring of Forest Service BMPs. The Tongass National Forest is currently developing a BMP monitoring strategy and action plan to achieve this objective. BMP monitoring in the Upper Carroll Project Area will follow the general guidelines outlined in this action plan. BMPs to be monitored at a specific site are determined through a review of unit/road cards, fish habitat reports, and other appropriate documentation.

Applicable monitoring requirements are specified at the end of Chapter 2 of the FEIS. For each monitoring item, an objective, desired result, method of measurement, and evaluation (or threshold and corrective action) are identified, along with identification of the responsible staff. Monitoring activities may reveal results that deviate from planned effects, in which case corrective actions are prescribed.

The Ketchikan Area Forest Supervisor is responsible for ensuring that project implementation, mitigation, monitoring, and enforcement is accomplished as specified.

Findings Required By Law

The National Forest Management Act (NFMA) requires specific determinations in this Record of Decision including consistency with existing Forest Plans and Regional Guides. It also requires a determination of clearcutting as the optimal method of harvesting and specific authorization of clearcuts over 100 acres in size.

Tongass Land Management Plan and Alaska Regional Guide

This decision is consistent with the Alaska Regional Guide and the Tongass Land Management Plan (1979a). I have reviewed the management direction, standards and guidelines, and the schedule of activities for the VCUs included in the Selected Alternative, and find the Selected Alternative to be consistent with these elements. The areas of undisturbed old-growth wildlife habitat maintained in this alternative exceed the standards for retention established in the TLMP.

Although not required, the activities authorized in this decision are consistent to the extent practicable with the proposed standards and guidelines and management prescriptions of the TLMP RSDEIS (1996a) Preferred Alternative.

Clearcutting as the Optimal Method of Harvesting

The Alaska Regional Guide established silvicultural and management standards for the western hemlock-Sitka spruce forest type (Alaska Regional Guide, page 3-18). Even-aged management in the form of clearcutting is, according to the Regional Guide, to be used where (1) the management objective is to meet timber production objectives established in the Forest Plan, (2) where there is a risk of dwarf mistletoe infestation, and (3) where risk of windthrow is determined to be high. Harvest units in the Selected Alternative are within LUD IV lands and have a moderate to high risk of windthrow. Most units in the Selected Alternative are prescribed for clearcut harvest. Clearcutting of these harvest units will meet the objective of maintaining fast-growing, mistletoe-free stands of mixed species and is the optimum method of harvesting, considering the following factors referenced in the Alaska Regional Guide:

1. The thin bark and shallow roots of hemlock and spruce make them particularly susceptible to logging injury, which leads to decay. Losses from decay fungi are high, especially in the old-growth forests of Alaska. Conversion from old- to young- growth by clearcutting has the greatest potential for reducing decay.
2. Hemlock dwarf mistletoe, *Arcanthobium tsugense*, a common disease of western hemlock, can best be controlled by clearcutting. Elimination of residual overstory trees infected with dwarf mistletoe prevents infestation of western hemlock in the new stand.
3. Exposure to the sun raises soil temperature, which speeds decomposition, thereby improving the productivity of most sites.
4. Clearcutting favors regeneration of Sitka spruce by destroying advance hemlock regeneration and by creating more favorable conditions for post-logging reproduction of spruce.
5. Risk of blowdown in residual stands is eliminated. The chance of blowdown along cutting boundaries is increased but can be reduced through proper design of cutting units.
6. Natural seed fall is generally adequate for regeneration and most young stands are dense.
7. Logging costs are lower than with other systems.

On June 4, 1992, F. Dale Robertson, former Chief of the Forest Service, issued a letter to Regional Foresters and Station Directors on the subject of Ecosystem Management of the National Forests and Grasslands. As part of this letter, an attachment was included regarding clearcutting on National Forest System lands and the use of other silvicultural systems. Specific items are listed which describe circumstances where clearcutting is appropriate. Within the FEIS for Upper Carroll, a discussion of alternatives considered is displayed. Where clearcutting is specified as the preferred regeneration harvest, documentation is provided for the reasons clearcutting is appropriate, and reference is made to the appropriate items in the Chief Robertson's letter which apply. Considering these factors, clearcutting, as applied in the Selected Alternative is appropriate and consistent with the criteria in the letter.

Clearcuts Over 100 Acres in Size

There is one unit which exceeds 100 acres. In addition, ROD Unit C05 (20 acres) will result in a created opening of approximately 135 acres in combination with previous harvest units. FEIS Appendix B includes a table that displays units or combinations of units and lists the reasons for exceeding 100 acres. Units over 100 acres were displayed for public review and comment for more than 45 days after release of the DEIS. This 45-day public comment period met the requirements of the Alaska Regional Guide for approval of units over 100 acres. These units are authorized for harvest as designed based on public review and the statements of reasons listed for the units greater than 100 acres in Appendix B of the FEIS.

Harvest units were designed and will be located to maintain a minimum 100-foot buffer zone for all Class I streams and Class II streams which flow directly into Class I streams as required in Section 103 of the TTRA. As discussed previously in the Mitigation section of this ROD, the actual widths of these buffer strips will often be greater than the 100-foot minimum. The design and implementation direction for the Selected Alternative incorporate BMPs for protection of all stream classes.

Proportionality—Original Method

Section 301(c)(2) of the TTRA modified the KPC Long-term Timber Sale Contract to require proportional harvest of timber Volume Classes 6 and 7. Analysis of the proportion of Volume Classes 6 and 7 planned for harvest was performed for the Upper Carroll Project. It was determined that upon completion of the Selected Alternative's harvest, proportionality consistent with the requirements of the TTRA for Management Areas K32 and K35 will result.

Using the Timber Type Map (TIMTYP) Proportionality Analysis Method outlined in FSH 2409.18-93-3 (1993), the proportion of Volume Classes 6 and 7 were calculated for Management Areas K32 and K35. The change in proportionality from the base percentage of 1990, resulting from harvest activity since 1990, and the change from the 1990 base resulting from the subtraction of the proposed harvest acres for each alternative are displayed in Table ROD-12. The base proportions presented here are different from that presented in the Forest Service Handbook. This difference is due to the use of project-specific information, updated GIS coverages for the Project Area, and an analysis based on polygon coverages rather than point grid coverages. As such, it represents an incremental improvement to the proportion presented in the Forest Service Handbook. Selection of FEIS Alternative 1 (No Action) would maintain the existing proportion identified as of December 31, 1994, for Management Areas K32 and K35.

The Selected Alternative in Management Areas K32 and K35 will continue to meet the proportionality base proportions of 8.82 and 5.39 percent using Proportionality Analysis Method FSH 2409.18-93-3 (1993). For Management Area K32, the Selected Alternative exceeds the base proportion by a difference of +0.02 percent. For Management Area K35, the Selected Alternative exceeds the base proportion by a difference of +0.16 percent.

In the following table, alternatives are within the required proportion if the “change from base” value is positive. If the “change from base” value is negative, the alternative is considered out of proportion.

Table ROD-12

Proportion of Volume Classes 6 and 7 Proposed for Harvest by Management Area as Described by Proportionality Analysis Method FSH 2409.18-93-3

	Total Timber Base (acres)	Class 6 & 7 (acres)	Proportionality (percent)	Difference (percent)^{1/}
Management Area K32				
TTRA Baseline (on November 28, 1990)	83,049	7,328	8.82	
Post TTRA Harvest	76,084	6,812	8.95	+0.13
Selected Alternative	75,060	6,637	8.84	+0.02
Management Area K35				
TTRA Baseline (on November 28, 1990)	47,314	2,552	5.39	
Post TTRA Harvest	46,058	2,552	5.54	+0.15
Selected Alternative	46,008	2,552	5.55	+0.16

SOURCE: Nightingale, Marks, 1996

^{1/} A positive difference indicates that the percent of Volume Classes 6 and 7 remaining in the Management Area is higher than the TTRA baseline. A negative difference indicates a lower percentage than the TTRA baseline.

Proportionality

Litigation Settlement

An updated approach to determining proportionality is currently being negotiated by the Forest Service. Until a final agreement is reached, and updated FSH guidelines are established, the Upper Carroll FEIS proportionality analysis will follow the procedures originally established in the FSH as well as the Transition Method shown in Table ROD-13 that was developed by Wilson in 1994. Settlement agreement and revised FSH may require further assessment of the Upper Carroll proportionality analysis for the preferred alternative.

Transition Proportionality Analysis Method

The Transition Proportionality Analysis Method developed by Wilson and Golnick in 1994 is also used to measure the proportionality within Management Areas K32 and K35. This method was developed in response to a lawsuit against the Forest Service challenging the use of TIMTYP and acres rather than volume to calculate the proportionality of harvest. The Interim Method uses the methodology of adjusting the total acres of each volume class to correct for indicated inaccuracies in the TIMTYP mapping of volume classes present at the local level. This adjustment is based on previously collected field data for each Administrative Area. The acres in each volume class are then multiplied by the average volume per acre for each volume class (also based on Administrative Area field data) to calculate the total volume present in each volume class. The volume of Volume Classes 6 and 7 is then divided by the total volume present in Volume Classes 4 through 7 to determine the proportion of high volume with the management area.

This approach differs from the acreage-based approach in two ways. First, this approach uses volume instead of acres to determine the proportion. Second, the process includes an adjustment to account for incorrectly mapped stands in all volume classes. Because this

approach is based on volume, and volume per acre varies between volume classes, harvest of Volume Class 7 acres will have a greater effect on proportionality than harvest of Volume Class 6 acres. Similarly, harvest of Volume Class 5 will be more effective in meeting the proportionality requirement, acre per acre, than the harvest of Volume Class 4.

Table ROD-13 displays the proportionality for the selected alternative using the transition method developed by Wilson and Golnick.

Table ROD-13

Proportion of Volume Classes 6 and 7 Proposed for Harvest by Management Area as Described by Transition Proportionality Analysis Method

	Total Timber Base (MBF Vol)^{1/}	Class 6 & 7 (MBF Vol)	Proportionality (percent)	Difference (percent)^{2/}
Management Area K32				
TTRA Baseline (on November 28, 1990)	2,120,769	789,617	37.2	
Post TTRA Harvest	1,943,069	732,155	37.7	+0.4
Selected Alternative	1,915,206	724,584	37.8	+0.6
Management Area K35				
TTRA Baseline (on November 28, 1990)	1,126,040	243,088	21.6	
Post TTRA Harvest	1,098,803	243,088	22.1	+0.5
Selected Alternative	1,097,799	242,921	22.1	+0.5

SOURCE: Nightingale, Marks, 1996

^{1/} Total Timber Base volumes derived from TIMTYP Data Layer using Transition Method of adjustment.

^{2/} A positive difference indicates that the percent of Volume Classes 6 and 7 remaining in the Management Area is higher than the TTRA baseline. A negative difference indicates a lower percentage than the TTRA baseline.

Endangered Species Act

Actions authorized in the Selected Alternative are not anticipated to have a direct, indirect, or cumulative affect on any threatened, endangered or sensitive species in the Upper Carroll Project Area. A complete biological assessment is included in Appendix D of the FEIS. I have determined that this action will not have any adverse impacts on any threatened or endangered species.

Bald Eagle Protection Act

Management activities within 330 feet of an eagle nest site are restricted by a Interagency Agreement between the Forest Service and the U. S. Fish and Wildlife Service to facilitate compliance with the Bald Eagle Protection Act. The Selected Alternative includes no road construction within 330 feet of a known bald eagle nest.

Record of Decision

Clean Water Act

The design of harvest units and roads for the Selected Alternative were guided by standards, guidelines, and direction contained in the current TLMP, the TLMP RSDEIS (1996a), Alaska Regional Guide, and applicable Forest Service manuals and handbooks. The ROD Appendices 2 and 3, Unit Design and Road Cards, contain specific details on practices prescribed to prevent or reduce non-point sediment sources. Reasonable implementation with site-specific application and monitoring of approved BMPs is expected to comply with applicable State Water Quality Standards Regulations. These regulations provide for variances from anti-degradation requirements and water quality criteria. The harvest and road-building operators will be responsible for compliance, including obtaining any variance required by the State, and will be monitored for compliance by the Forest Service. The Forest Service expects Upper Carroll Project Area activities will fully qualify for any variance required by the State, according to the criteria in 18 AAC 70.015.

A monitoring plan to detect and evaluate possible effects of bark accumulations, oil sheens, and surface runoff will be implemented as a part of permitting processes for log transfer facilities (BMP 14.4, FSH 2509.22).

National Historic Preservation Act

Cultural resource surveys of various intensities have been conducted in the Project Area. The State Historical Preservation Officer has been consulted, and the provisions of 36 CFR part 800 are being complied with. Forest Service timber sale contracts contain enforceable measures for protecting any undiscovered cultural resource that might be encountered during sale operations. No ground-disturbing activities associated with this action will occur before a cultural resource clearance for a specific area has been given. I have determined, consistent with the Forest Service direction on cultural resources, that there will be no significant effects on cultural resources. We have completed the Section 106 review for all timber harvest related activities displayed in the Final Environmental Impact Statement. This includes roads, units, and LTFs in all alternatives.

Federal Cave Resource Protection Act of 1988

The actions in the Selected Alternative will not have a direct, indirect, or cumulative effect on any significant cave in the Upper Carroll Project Area. No cave resources have been documented in the Project Area and no caves were discovered during field work done for this analysis (FEIS, Chapter 3).

ANILCA Section 810

Subsistence Evaluation and Findings

A subsistence evaluation was conducted for the five alternatives considered in detail for the proposed action in accordance with ANILCA Section 810. Open houses followed by ANILCA Section 810 hearings were held in Ketchikan and Saxman. The results from the subsistence hearings were incorporated into the development of the Selected Alternative.

The evaluation of comments from the public, subsistence hearing testimony, and additional analysis indicates that the potential foreseeable effects from the action alternatives in the Upper Carroll Project Area do not indicate a significant possibility of a significant restriction of subsistence uses for bear, furbearers, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods such as berries and roots.

The analysis does conclude that there is a significant possibility of a significant restriction on subsistence use of Sitka black-tailed deer in the Project Area for the community of Ketchikan and Saxman. Implementation of the Selected Alternative by itself does not present a significant possibility of a significant restriction to subsistence use of deer. The effects of the Selected Alternative on the subsistence use of deer are minimal, with a reduction in deer habitat capability within the Project Area of less than 5 percent. However, there is a significant possibility of a significant restriction when the Selected Alternative together with other past, present, and future actions are considered in a cumulative manner. This restriction exists regardless of which alternative is implemented, including the FEIS No Action Alternative. This restriction would be a result of (1) a decrease in habitat capability that could decrease the abundance or distribution of deer, (2) high deer mortality during severe winters that occur periodically, (3) average yearly deer harvest levels exceeding what appears to be

sustainable harvest levels, and (4) anticipated human population growth with its associated increase in subsistence hunter demand when compared to the habitat capability to produce deer.

Subsistence Determinations

Section 810 of ANILCA requires that when a use, occupancy, or disposition of public lands would significantly restrict subsistence uses, determinations must be made that (1) the significant restriction of subsistence uses is necessary, consistent with sound management of public lands, (2) the proposed activity involves the minimum amount of public lands necessary, and (3) reasonable steps will be taken to minimize adverse impacts on subsistence uses and subsistence resources resulting from the action.

Necessary, Consistent with Sound Management of Public Land

The Selected Alternative has been examined to determine whether the associated potential restriction to subsistence use is necessary, consistent with the sound management of public lands. Standards used for the review included: (1) the Multiple Use Sustained Yield Act of 1960; (2) the National Forest Management Act (NFMA) of 1976 and its implementing regulations; (3) the Alaska National Interest Lands Conservation Act (ANILCA) of 1980; (4) the Alaska Regional Guide (1983); (5) the Tongass Land Management Plan of 1979 (as amended) and the draft revision; (6) the Tongass Timber Reform Act (TTRA) of 1990; (7) the Alaska State Forest Practices Act; (8) the Alaska coastal Zone Management Program; (9) Subsistence Management and Use Handbook (1985); and (10) Subsistence Evaluation and Finding (FSH 2609.25).

ANILCA placed an emphasis on the maintenance of subsistence resources and life-styles. However, the Act also provided for adequate opportunity for satisfaction of the economic and social needs of the State of Alaska and its people, and recognized public lands necessary and appropriate for more intensive uses. The Act also required the Forest Service to make available for harvest 4.5 billion board feet of timber per decade from the Tongass National Forest. The TTRA removed the 4.5 billion board foot requirement from ANILCA, but directed the Forest Service to seek to meet market demand for timber to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, and subject to applicable law.

The Selected Alternative is necessary as a component of the timber management program designed to meet KPC Long-term Sale Contract requirements, implement the Forest Plan, and meet TTRA direction. KPC Long-term Sale Contract offerings made from the project will contribute to meeting KPC contract obligations. There is currently a generally strong market demand for timber, a limited timber supply from other sources, and an under-utilized mill capacity in the region. The Selected Alternative provides the most volume to contribute to the Forest Service's actions to seek and meet market demand while providing for other resources and uses. Current timber market analysis indicates that the timber demand exceeds the timber supply. The timber volume provided by the Selected Alternative will best help to bridge that gap. This volume serves as a component of the ten year timber sale schedule which attempts to provide timber to industry in an even timber sale flow over the planning cycle. The timber volume is also a substantial component of the timber sale program to be offered in the next five years on the Ketchikan Area to meet annual market demand. Timber volume from other areas of the Tongass National Forest is not available to replace this volume in a reasonable time frame.

Of the action alternatives, the Selected Alternative best meets the objectives of the KPC Contract, Forest Plan, and TTRA for timber harvests while also providing protection measures for forest resources. It is consistent with the Forest Plan, laws, regulations, policies, public needs, and the capabilities of the land.

Based on a review of the subsistence hearing testimony and the analysis conducted in the FEIS, it is apparent that all of the action alternatives involve some potential impact to

subsistence deer use in the future. There is no alternative that would meet KPC Contract, TLMP, and TTRA objectives and yet avoid a significant possibility of a subsistence restriction somewhere in the Tongass National Forest. Therefore, based on the analysis of the information presented in the FEIS and this ROD, it is my determination that the Selected Alternative is necessary, consistent with sound management of public lands and strikes the best balance between meeting the needs of the public and protecting forest resources.

Amount of Land Necessary to Accomplish the Purpose of the Proposed Action

The amount of public land involved to implement the Selected Alternative is (considering sound multiple-use management of public lands) the minimum necessary. The Upper Carroll Project Area was selected to become part of the timber sale schedule because it is designated as a multiple use area that permits timber harvest in the Forest Plan. The TLMP assigned a land use designation (LUD) of IV to approximately 100 percent of the Upper Carroll Project Area. This designation provides for intensive resource use and development with an emphasis on commodity resources such as timber. In addition, the TLMP schedules timber sale preparation for both Management Areas in the Project Area. The Upper Carroll Project Area is located partially within the KPC Primary Sale Area; the remainder is located within the Contract Contingency Area.

The Project Area is located in an area that has been harvested twice. This includes harvest from 1954 in VCU 744 and more recent harvest in VCU 746 (Shelter Cove). The Selected Alternative has two proposed sale areas which will utilize existing LTF sites (one requires reconstruction). The Selected Alternative also provides a sound location and design for all harvest units and roads. The minimum amount of land and roading was used to resolve resource concerns while meeting the purpose and need for the project in a practical and efficient manner. The Selected Alternative harvests less than 5 percent of the inventoried old-growth forest within the Project Area and less than 14 percent of the commercial forest land. Resources were protected to the maximum extent practicable.

Choosing an alternative other than the Selected Alternative (including the No Action Alternative) or locating the harvest in another location on the Ketchikan Area would not avoid or substantially lessen the risk to subsistence use in the future. The total deer habitat capability within the Project Area, projected into the future, is only expected to be reduced by less than 5 percent by harvest from the Selected Alternative when compared to the No Action Alternative. The risk to subsistence use in the future is primarily a result of (1) a decrease in habitat capability that could decrease the abundance or distribution of deer, (2) average yearly deer harvest levels exceeding what appears to be sustainable harvest levels, and (3) anticipated human population growth with its associated increase in subsistence hunter demand when compared to the habitat capability to produce deer. These effects are independent of the Upper Carroll Project.

The entire Tongass National Forest is used by one or more rural communities for subsistence purposes for deer hunting (TRUCS, Forest Service 1990b). The areas of most subsistence use are the areas adjacent to existing road systems, beaches, and the areas in close proximity to the communities. Much effort was taken to protect the highest value subsistence areas. For example, beach fringe is one of the most highly used subsistence areas and there is no timber harvest planned in the beach fringe by the Selected Alternative.

Management activities can not completely avoid these subsistence areas due to their location and broad extent across the Forest. Areas other than subsistence use areas that could be harvested may be limited by other resource concerns such as soil and water protection, high-value wildlife habitat, economics, scenic quality, or unit and road design. The impact of viable timber harvest projects always includes the alteration of old-growth habitat which reduces habitat capability for old-growth dependent species.

It is not possible to lessen harvest in one area and concentrate it in another without impacting one or more rural communities important subsistence use areas. In addition, harvestable

populations of game species could not be maintained in a natural distribution across the Forest if harvest was concentrated in specific areas. A well-distributed population of species is also required by the Forest Service regulations implementing the NFMA.

Therefore; it is my determination that the Selected Alternative involves the minimum amount of public land necessary and strikes the best balance between meeting the needs of the public and protecting the forest resources.

Reasonable Steps to Minimize Adverse Impacts Upon Subsistence Uses and Resources

Considerable steps were taken to minimize the impacts to subsistence use and resources. The Selected Alternative reflects special efforts by the forest Service to minimize the effects on resources used for subsistence by those rural communities that would be most likely to receive the highest priority in the event of an ANILCA section 804 "Tier II" restriction. Considerable effort was taken during the Upper Carroll analysis to protect the highest value subsistence areas for deer. Most areas of high value and historic beach fringe or stream buffers which are the areas of traditional use. The affect of the Selected Alternative on subsistence use of deer by the communities of Ketchikan and Saxman is minimal. The Selected Alternative projects a reduction in deer habitat capability in the future of less than one percent for both full WAAs (406 and 510) and less than five percent within the Project Area.

Another significant subsistence resource in the Project Area is salmon. Fish habitat is protected in the Selected Alternative through the application of the BMPs and stream buffers. In addition to protecting fish habitat these buffers also protect estuarine and riparian habitat important to other species such as plants, deer, bear, and furbearers.

The Selected Alternative reflects a reasonable balance between projected need for Tongass timber from the Project Area to help meet KPC Contract, TLMP, ANILCA, and TTRA timber related employment objectives, and continued protection of subsistence uses and resources. Impacts on subsistence have been minimized through the development of the individual harvest units and road corridors, and through the formulation of the alternatives.

The FEIS and this ROD describe the mitigation measures that will be implemented as a part of the Selected Alternative. Most of the mitigation measures are designed to maintain fish and wildlife habitat productivity at the highest level possible, while still maintaining a supply of timber.

A significant possibility of a significant restriction on the subsistence use of Sitka black-tailed deer in the Project Area is expected when the Selected Alternative together with other past, present, and reasonably foreseeable actions are considered in a cumulative manner. This restriction would be a result of (1) a decrease in habitat capability that could decrease the abundance or distribution of deer, (2) high deer mortality during severe winters that occur periodically, (3) average yearly deer harvest levels exceeding what appears to be sustainable harvest levels, and (4) anticipated human population growth with its associated increase in subsistence hunter demand when compared to the habitat capability to produce deer.

It is my determination that reasonable measures to minimize impacts on subsistence have been adopted to the maximum extent practicable while still meeting the purpose and need for this project.

Executive Order 11988

Executive Order 11988 directs Federal agencies to take action to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. The numerous streams in the Upper Carroll Project Area make it impossible to avoid all floodplains during timber harvest and road construction. The design of the proposed developments and the application of Best Management Practices combine to minimize adverse impacts on floodplains.

Executive Orders

Executive Order 11990

Executive Order 11990 requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. The Selected Alternative avoids most identified wetlands; however, many small wetlands or muskegs occur as inclusions within forested areas. These areas may be altered by timber harvest or road construction. Techniques and practices required by the Forest Service serve to maintain the wetland attributes including values and functions. It is estimated there will be only minimal loss of wetlands with any of the alternatives. Soil moisture regimes and vegetation on some wetlands may be altered in some cases; however, these altered acres would still be classified as wetlands and function as wetlands in the ecosystem.

Executive Order 12898

Executive Order 12898 directs Federal agencies to identify human health and environmental effects of agency programs that disproportionately impact minority and low income populations. Sec. 4-4 of this executive order addresses subsistence consumption of fish and wildlife. Subsistence consumption patterns were analyzed and the effects of the project on subsistence uses were documented in the environmental assessment.

Executive Order 12962

Executive Order 12962 requires Federal agencies to evaluate the effects of proposed activities on aquatic systems and recreational fisheries. The Selected Alternative attempts to minimize the effects upon aquatic systems through project design, watershed analysis, application of Forest Plan Standards and Guidelines, BMPs, and site specific mitigation measures. Recreational fishing opportunities will remain essentially the same because (1) aquatic habitats are protected to the extent practicable, and (2) the isolated road system, far from the nearest town, is unlikely to result in increased opportunities.

Coastal Zone Management Act

The Coastal Zone Management Act of 1972 (CZMA), as amended, while specifically excluding Federal lands from the coastal zone, requires that a Federal agency's activities be consistent with the enforceable policies of a state's coastal management program to the maximum extent practicable when that agency's activities affect the coastal zone. Forest Service requirements for consistency are detailed in a Memorandum of Understanding between the State of Alaska and the Regional Forester, dated October 8, 1981. Standards against which the consistency evaluation take place are: Alaska Statute Title 46, Water, Air, Energy, and Environmental Conservation; Alaska Forest Practices Act of 1990; and the District Coastal Management Program.

The Alaska Coastal Management Plan incorporated the Alaska Forest Resources and Practices Act of 1979 (as revised) as the applied standards and guidelines for timber harvesting and processing. The Forest Service standards and guidelines, BMPs, and mitigation measures described in Appendix A of the FEIS are fully consistent with the State Standards.

Based on the analysis in the FEIS, review of the Alaska Forest Practices Act, and comments from the City of Ketchikan and State agencies on the DEIS, the action and activities are consistent to the maximum extent practicable with the enforceable policies of the Alaska Coastal Management Plan.

The standards and guidelines for timber management activities in the Upper Carroll Project Area meet or exceed those indicated in the Alaska Forest Practices Act and the Alaska Coastal Management Program (ACMP).

I have determined that the proposed activities are consistent with the Alaska Coastal Management Program to the maximum extent practicable. In accordance with the Memorandum of Understanding and Alaska Statutes, the Office of Governmental

Federal and State Permits

Coordination has done a consistency review of the Selected Alternative and concurred with this determination (State of Alaska, controlled correspondence, State I.D. No. AK 9605-04JJ).

Federal and State permits necessary to implement the authorized activities are listed at the end of Chapter 1 of the FEIS.

Implementation Process

Implementation of this decision may occur no sooner than 30 days after the date of publication of the Notice of Availability of the FEIS in the *Federal Register*, or 50 days following publication of the legal notice of the decision in the *Ketchikan Daily News*, published in Ketchikan, Alaska, whichever is later.

This project will be implemented in accordance with Forest Service Manual and Handbook direction for Timber Sale Project Implementation in FSM 2431.3 and FSH 2409.24. This direction provides a bridge between project planning and implementation and will ensure execution of the actions, environmental standards, and mitigations approved by this decision, and compliance with the TTRA and other laws.

Implementation of all activities authorized by this Record of Decision will be monitored to ensure that they are carried out as planned and described in the FEIS and ROD Appendices 2 and 3, Unit Design and Road Cards, unless modified consistent with direction in the FSM 2432.3 and FSH 2409.18.

Unit Design and Road Cards are contained in ROD Appendices 2 and 3. These cards are an integral part of this decision because they document the specific resource concerns, management objectives, and mitigation measures to govern the layout of the harvest units and construction of roads. These cards will be used during the implementation process to assure that all aspects of the project are implemented within applicable standards and guidelines and that resource impacts will not be greater than those described in the FEIS. Similar cards will be used to document any changes to the planned layout, as the actual layout and harvest of the units occurs with project implementation. The implementation record for this project will display each harvest unit, transportation facility, and other project components as actually implemented; any proposed changes to the design, location, standards, and guidelines, or other mitigation measures for the project; and the decisions on the proposed changes.

Process for Change During Implementation

Proposed changes to the authorized project actions will be subject to the requirements of the National Environmental Policy Act (NEPA), the National Forest Management Act of 1976 (NFMA), Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), the Tongass Timber Reform Act (TTRA), the Coastal Zone Management Act (CZMA), and other laws concerning such changes.

In determining whether and what kind of further NEPA action is required, the Forest Supervisor will consider the criteria for whether to supplement an existing Environmental Impact Statement (EIS) in 40 CFR 1502.9(c) and FSH 1909.15, sec. 18, and in particular, whether the proposed change is a substantial change to the intent of the Selected Alternative as planned and already approved, and whether the change is relevant to environmental concerns. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. Cumulative impacts will be considered.

The intent of field verification is to confirm inventory data and to determine the feasibility and general design and location of a unit or road, not to locate the final boundaries or road locations. Minor changes are expected during implementation to better meet on-site resource management and protection objectives. Minor adjustments to unit boundaries are also likely during final layout for the purpose of improving logging system efficiency. This will usually entail adjusting the boundary to coincide with logical logging setting boundaries. Many of these minor changes will not present sufficient potential impacts to require any specific documentation or action to comply with applicable laws. Some minor changes may still require appropriate analysis and documentation to comply with FSH 1909.15, sec. 18.

Right To Appeal

This decision is subject to administrative appeal. Organizations or members of the general public may appeal this decision according to Title 36 Code of Federal Regulations (CFR) Part 215. The appeal must be filed within 45 days of the date that legal notification of this decision is published in the Ketchikan Daily News, the official newspaper of record. The Notice of Appeal must be filed in duplicate with:

Phil Janik, Regional Forester
Forest Service
U.S. Department of Agriculture
P.O. Box 21628
Juneau, Alaska 99802-1628

It is the responsibility of those who appeal a decision to provide the Regional Forester sufficient narrative evidence and argument to show why the decision by the Forest Supervisor should be changed or reversed. At a minimum, the written notice of appeal must:

1. State that the document is a Notice of Appeal filed pursuant to 36 CFR part 215;
2. List the name, address, and, if possible, a telephone number of appellant;
3. Identify the decision document by title and subject, date of the decision, and name and title of the Responsible Official;
4. Identify the specific change(s) in the decision that the appellant seeks or portion of the decision to which the appellant objects;
5. State how the Responsible Official's decision fails to consider comments previously provided, either before or during the comment period specified in 36 CFR 215.6 and, if applicable, how the appellant believes the decision violates law, regulation, or policy.

The first timber offering is planned to be made available as part of the current timber supply in 1997.

Contact Person

For additional information concerning the specific activities authorized with this decision contact the Ketchikan Area, Ketchikan Ranger District, Project Manager.

Bill Nightingale
Project Manager
Ketchikan Area, Tongass National Forest
Ketchikan Ranger District
3031 Tongass Avenue
Ketchikan, Alaska 99901

(907) 225-2148



BRADLEY E. POWELL
Forest Supervisor, Ketchikan Area
Tongass National Forest

10-25-96

Date



Appendix 1

ROD Unit List

Upper Carroll
ROD Unit List

ROD UNIT #	VCU	FEIS UNIT #			VOLUME CLASS ACRES				TOTAL ACRES	VOLUME MBF
		1	2	3	4	5	6	7		
C01	746	127			8.7				8.7	202.7
C02	746	125			3.1				3.1	65.6
C03	746	111			7.8				7.8	213.2
C04	746	119			5.0				5.0	137.2
C05	746	120			11.7	8.1			20.1	603.1
C06	746	121			0.7	4.3			5.0	154.6
C07	744	35	38		1.7	30.9			32.7	1,083.9
C08	744	3	27	28			77.7		77.7	3,503.5
C09	744	40	41				18.4		18.4	830.3
C11	744	47	49			1.9	68.9		70.9	3,176.7
C12	744	19			19.1	29.3			49.2	1,230.9
C13	744	20			43.6				43.6	383.9
C14	744	21			7.7				7.7	206.4
C15	744	22			1.1	32.3			33.4	1,125.6
C16	744	51			0.9	22.1			23.0	771.7
C17	744	55	138		0.3	38.2			38.5	1,320.1
C18	744	8				91.9			91.9	3,172.9
C19	744	57	58	59	50.2	36.6			86.8	2,524.7
C20	744	68			4.2				4.2	54.2
C21	744	9			21.6	14.6			36.3	1,100.2
C22	744	61			15.8				15.8	348.6
C23	744	16			73.6	32.1			105.7	2,829.0
C24	744	64	65	66	95.5				95.5	2,461.7
C25	744	67			40.6				40.6	906.5
C26	744	72	73		26.4	38.9	0.1		65.5	1,948.5
C27	744	130			13.7		10.3		24.0	824.6
C28	744	74			5.1				5.1	65.6
C29	744	131			35.7				35.7	876.9
C30	744	132			22.7				22.7	593.3
SUBTOTAL ALL					517.6	381.3	175.4	0.0	1074.4	32,738.0

NOTE: Totals may vary due to rounding.

Appendix 2

ROD Unit Cards

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C01 **Planned Acres:** 8.7 **Estimated Volume:** 202.7 **In Alternatives:** 2, 3, 5, 6, 7
Silvicultural System: See section **Number of Settings:** 1 **Quad:** KTNC5SE **Photo:** 1390-23 **Logging systems:** - SH
Management Area: K32 **VCU Number:** 746 **Watershed Code:** D79A **WAA Number:** 510 **NOI Unit:** 825 **Original LSTA Unit:** 746-825

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 6.7 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 **Aspect:** NE
Volume class breakdown: Class 4: 6.7 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 **Low Productive** 2.0
Visuals: Seen 0.0 Not Seen 8.7 **VQOs:** PR- 0.0 MM- 8.7 M- 0.0 P- 0.0 R- 0.0
Recreation: Primary ROS Code RM **High VAC** 8.7 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 0.0
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 **Soils:** 0.0
Mass movement Index: Low 8.7 Medium 0.0 High 0.0 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 8.7 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 8.7 3- 0.0 4- 0.0
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 3.3

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit consists of forested wetlands (BMP 12.5). Suitable for shovel logging (BMP 13.9). NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Shovel. Confirm final road and landing locations.

Engineering Input

Coho/Pink/Chum timing (June 15 - August 7) may apply to all road construction and/or drainage installations.

Fish/Watershed Input

Class I FP3 stream north (TTRA): 200 foot no cut buffer (BMP 12.6, 12.6a).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/29/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

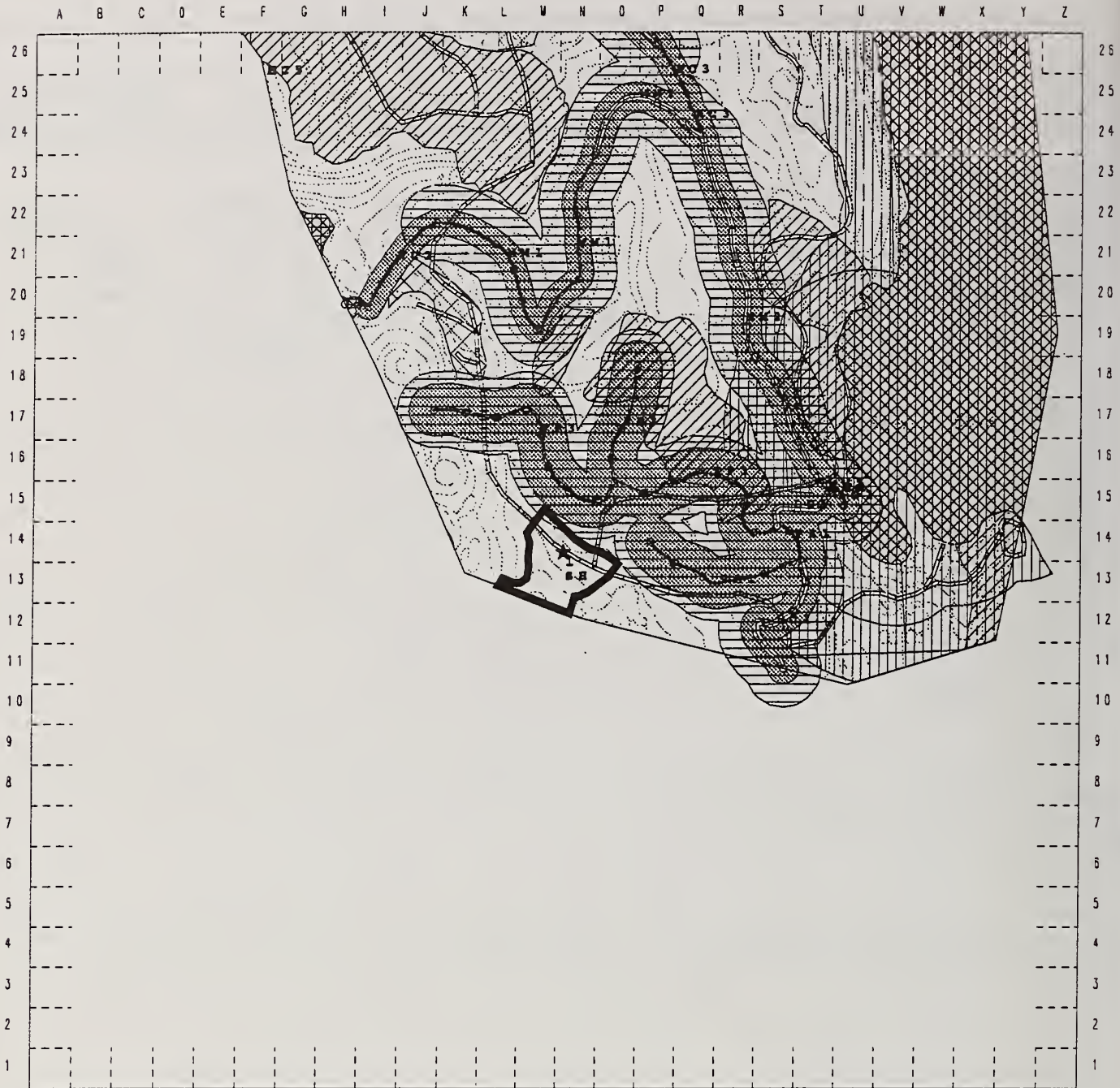
No concerns. NRB 8/10/95

Silviculture Input

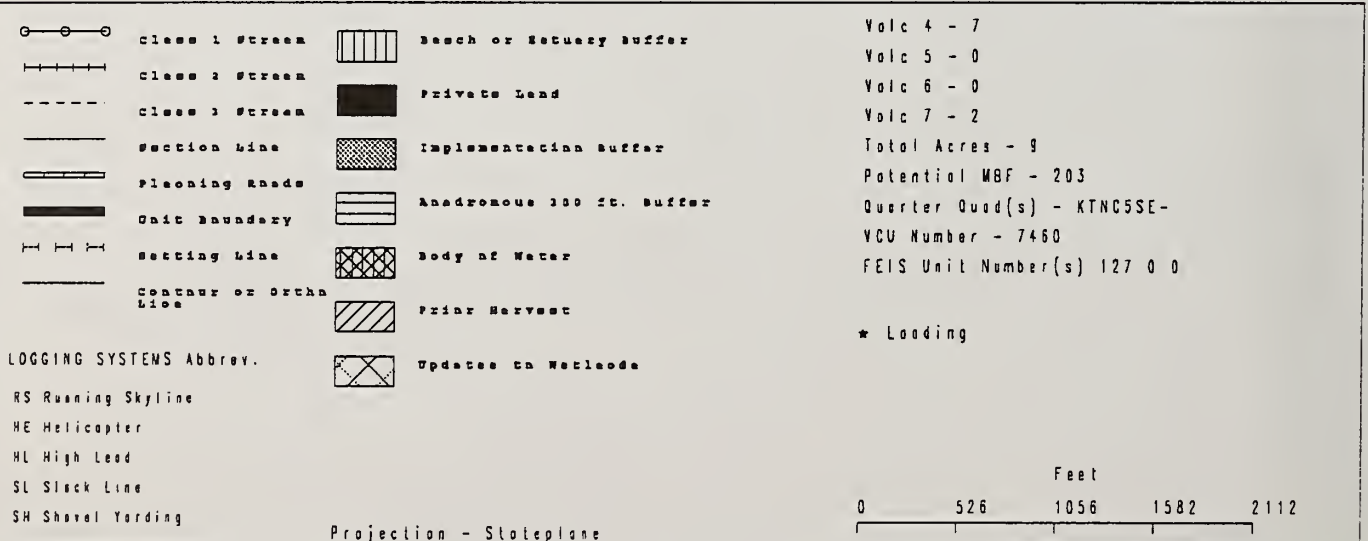
Low productivity, containing mostly Hydric soils. Entire unit will require planting a mix of Sitka spruce, Alaska yellow and western red cedar. Attempt to blend unit into surrounding muskeg system. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C01

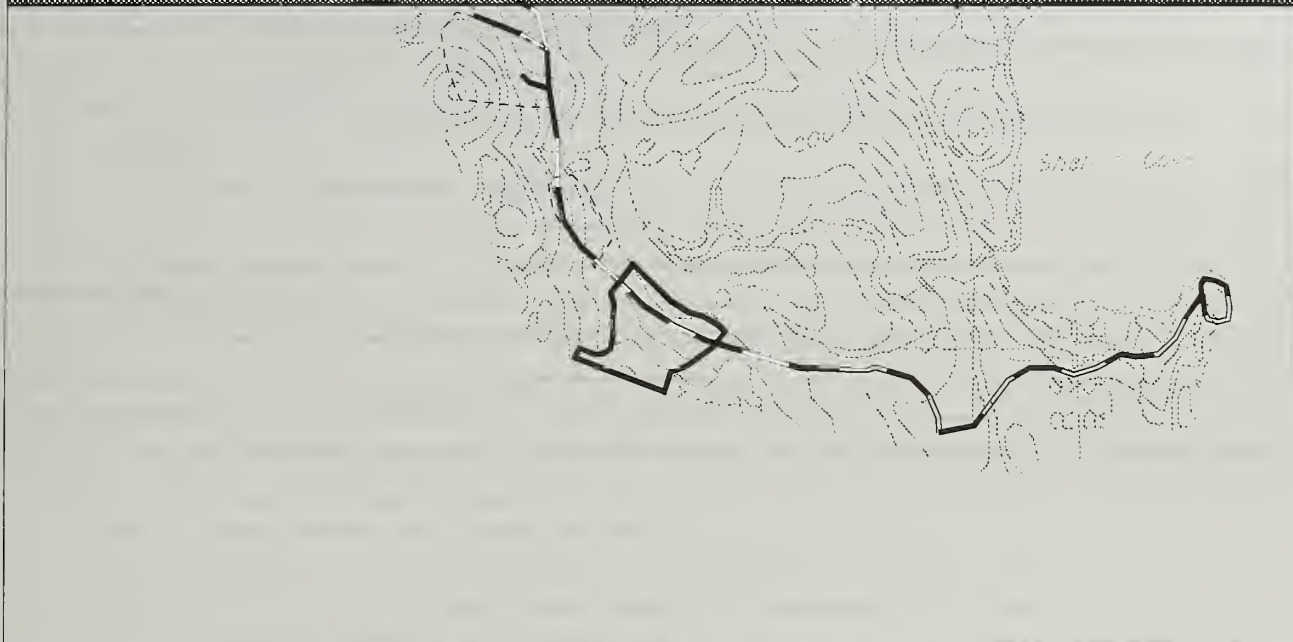
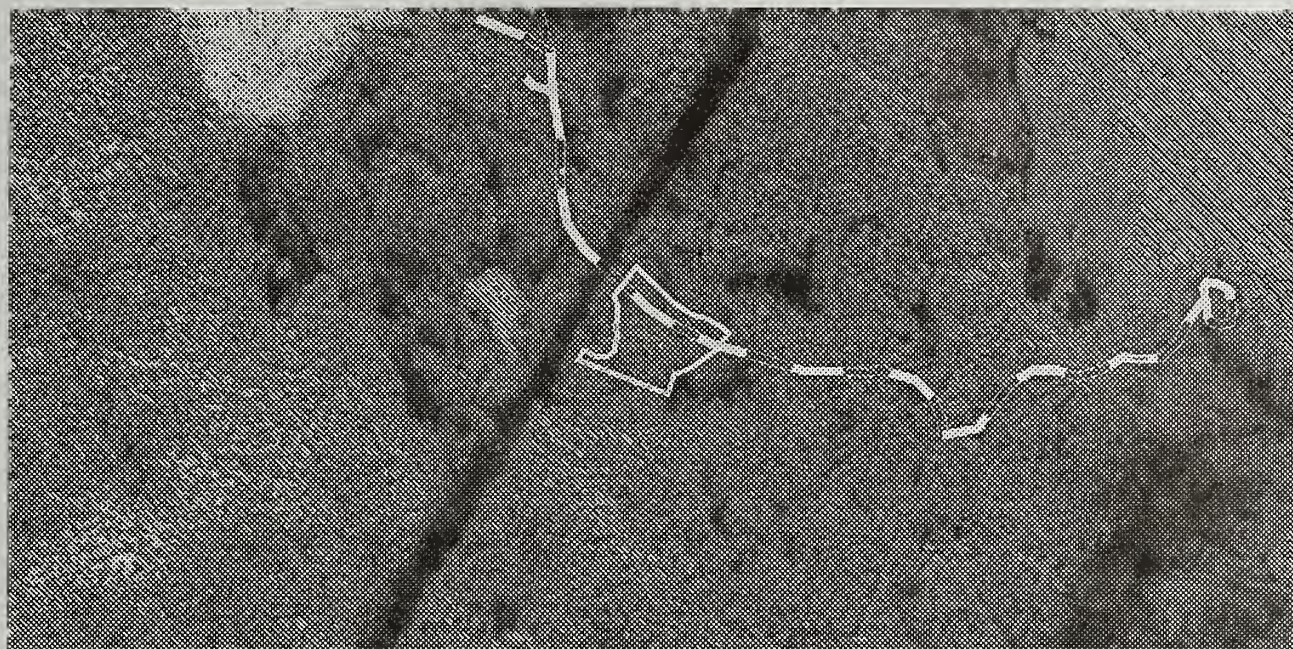
Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98. /s:\files\ref\library\gis\upperc5\rodcard\rod2cord



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c01



General Information:

Volume Class 4 7

Volume Class 5 0

Volume Class 6 0

Non Volume Class 2

Total acres 9

potential MBF 203

VCU Number 7460

located on USGS Quarter Quad(s) KTNC5SE

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:

127 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C02 Planned Acres: 3.1 Estimated Volume: 65.6 In Alternatives: 2, 3, 5, 6, 7
 Silvicultural System: See section Number of Settings: 1 Quad: KTNC5SE Photo: 1390-23 Logging systems: - RS
 Management Area: K32 VCU Number: 746 Watershed Code: D79A WAA Number: 510 NOI Unit: 823 Original LSTA Unit: 746-823

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 2.1 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 Aspect: E
 Volume class breakdown: Class 4: 2.1 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 Low Productive 0.0
 Visuals: Seen 0.0 Not Seen 3.1 VQOs: PR- 0.0 MM- 3.1 M- 0.0 P- 0.0 R- 0.0
 Recreation: Primary ROS Code RM High VAC 3.1 Intermediate VAC 0.0 Low VAC 0.0 Roadless 0.0
 Riparian MA: Class 1 Stream: 0.3 Class 2 Stream: 0.0 Class 3 Stream: 0.0 Soils: 0.0
 Mass movement Index: Low 3.1 Medium 0.0 High 0.0 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 0.0
 Wetland Information: Wetland 3.1 Mix Wetland 0.0 Riparian Soil 0.0 Site Productivity Classes 1- 0.0 2- 3.1 3- 0.0 4- 0.0
 High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 0.0

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit consists of forested wetlands, low volume, western hemlock and mixed conifer plant series on poorly drained, peat soils (BMP 12.5). Recommend shovel logging to provide full log suspension on this site. NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations.

Engineering Input

Coho/Pink/Chum timing (June 15 - August 7) may apply for all road construction and/or drainage installations.

Fish/Watershed Input

Class I FP3 stream northeast (TTRA) : 200 foot no cut buffer (BMP 12.6, 12.6a).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/29/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

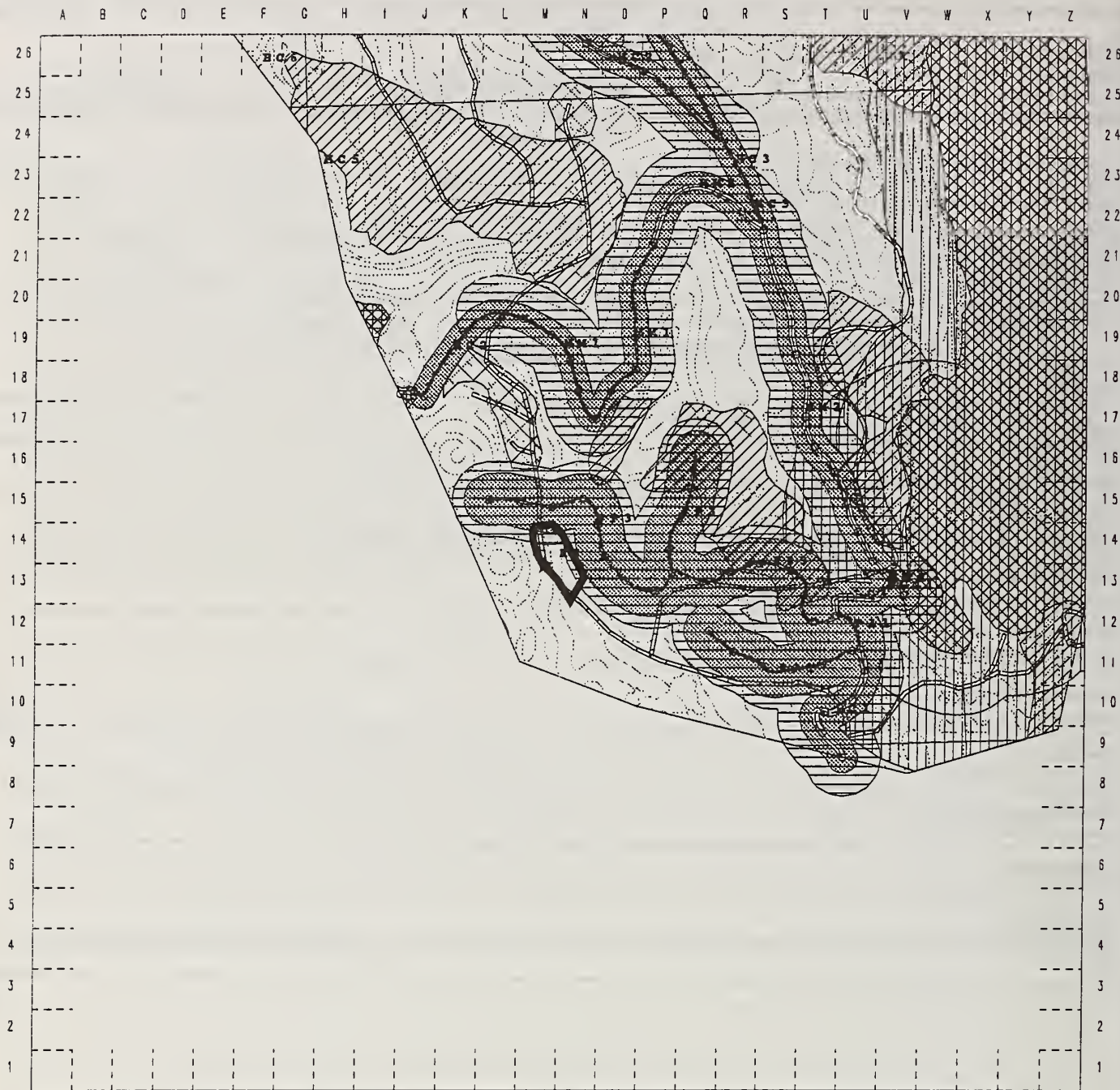
No concerns. NRB 8/10/95

Silviculture Input

Low productivity. Plant entire unit with Sitka spruce, Alaska yellow cedar and western red cedar mix. Attempt to blend unit into surrounding muskeg system. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C02

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, /isfiles/ref/library/gis/upperc5/rodcord/rod2cord



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Road		Body of Water
	Unit Boundary		Prior Harvest
	Settling Line		Update to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shore Yarding

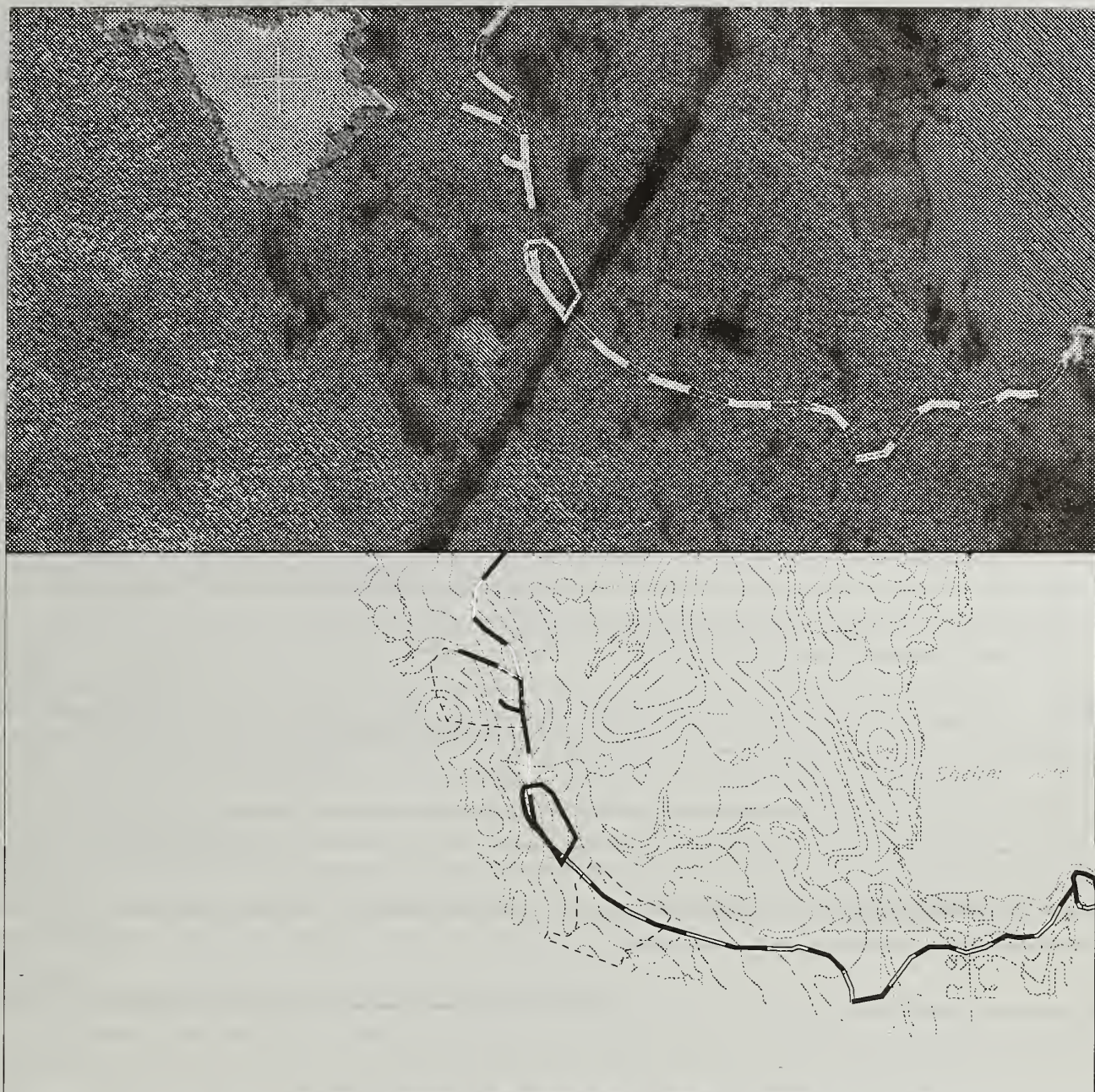
Volc 4 - 2
Volc 5 - 0
Volc 6 - 0
Volc 7 - 0
Total Acres - 3
Potential MBF - 57
Quarter Quad(s) - KTNC5SE-
VCU Number - 7460
FEIS Unit Number(s) 125 0 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c02



General Information:

Volume Class 4	2
Volume Class 5	0
Volume Class 6	0
Non Volume Class	0
Total acres	3
potential MBF	57
VCU Number	7460

located on USGS Quarter Quad(s) KTNC5SE

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
125 0 0

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C03 Planned Acres: 7.8 Estimated Volume: 213.2 In Alternatives: 2, 3, 5, 0, 7
 Silvicultural System: See section Number of Settings: 2 Quad: KTNC5SE Photo: 1390-23 Logging systems: - RS
 Management Area: K32 VCU Number: 746 Watershed Code: D79A WAA Number: 510 NOI Unit: 757 Original LSTA Unit: 746-757

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 7.8 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 Aspect: E
 Volume class breakdown: Class 4: 7.8 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 Low Productive 0.0
 Visuals: Seen 0.8 Not Seen 6.9 VQOs: PR- 0.0 MM- 6.9 M- 0.0 P- 0.0 R- 0.8
 Recreation: Primary ROS Code RM High VAC 7.8 Intermediate VAC 0.0 Low VAC 0.0 Roadless 0.0
 Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 Soils: 0.0
 Mass movement Index: Low 7.8 Medium 0.0 High 0.0 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 0.0
 Wetland Information: Wetland 2.5 Mix Wetland 0.0 Riparian Soil 0.0 Site Productivity Classes 1- 0.0 2- 7.8 3- 0.0 4- 0.0
 High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 7.3

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit consists of forested wetlands, low volume, mixed conifer stand. Suitable for shovel yarding (BMPs 12.5, 13.9).
 NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations.

Engineering Input

Coho/Pink/Chum timing (June 15 - August 7) may apply for all road construction and/or drainage installations.

Fish/Watershed Input

Class I FP3 stream south (TTRA): 200 foot no cut buffer (BMP 12.6, 12.6a).
 Class II HC2 stream northwest (TTRA): 100 foot no cut buffer (BMP 12.6, 12.6a).

Wildlife Input

No mitigation measures identified.

Recreation / Visuals Input

A small portion of unit may be seen. Identified VQO is maximum modification. WEA 9/30/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

Carbonate rock has been found in the North Saddle Lakes area. If carbonate rock or karst features are found in this unit, follow Ketchikan Area cave management direction. NRB 8/10/95

Silviculture Input

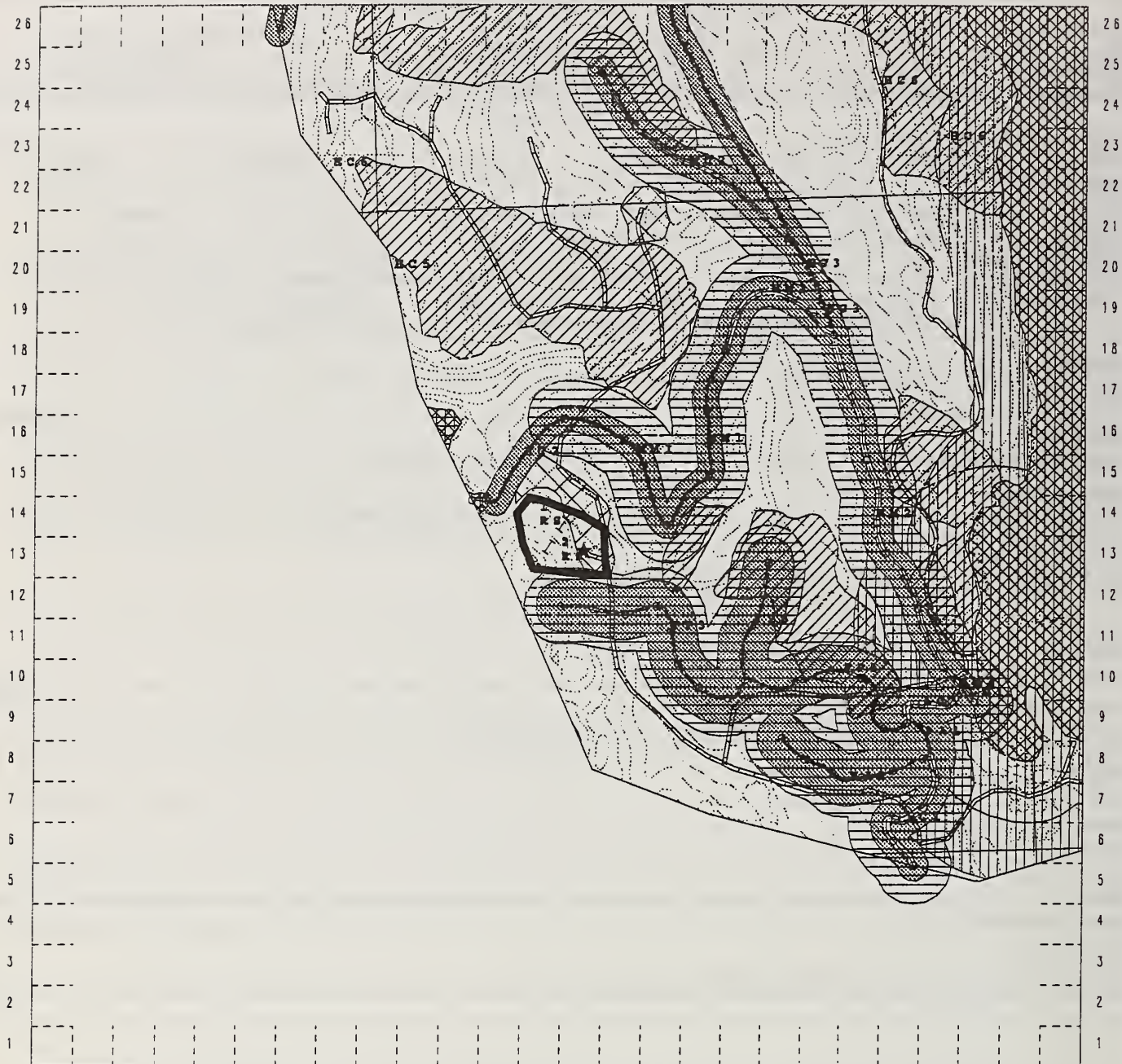
Low productivity with areas of Hydric soils that will need to be planted. (3 acres). CGB

Upper Carroll Study Area Unit Schematic - ROD Unit C03

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, /sfiles/ref/library/gis/upperc5/rodcard/rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setting Line		Updates to Wetlands
	Contour or Ortho Line		

Volc 4 - 8
Volc 5 - 0
Volc 6 - 0
Volc 7 - 0
Total Acres - 8
Potential M3 - 213
Quarter Quat(s) - KTNCSSE-
VCU Number - 7460
FEIS Unit Number(s) 111 0 0

* Landing

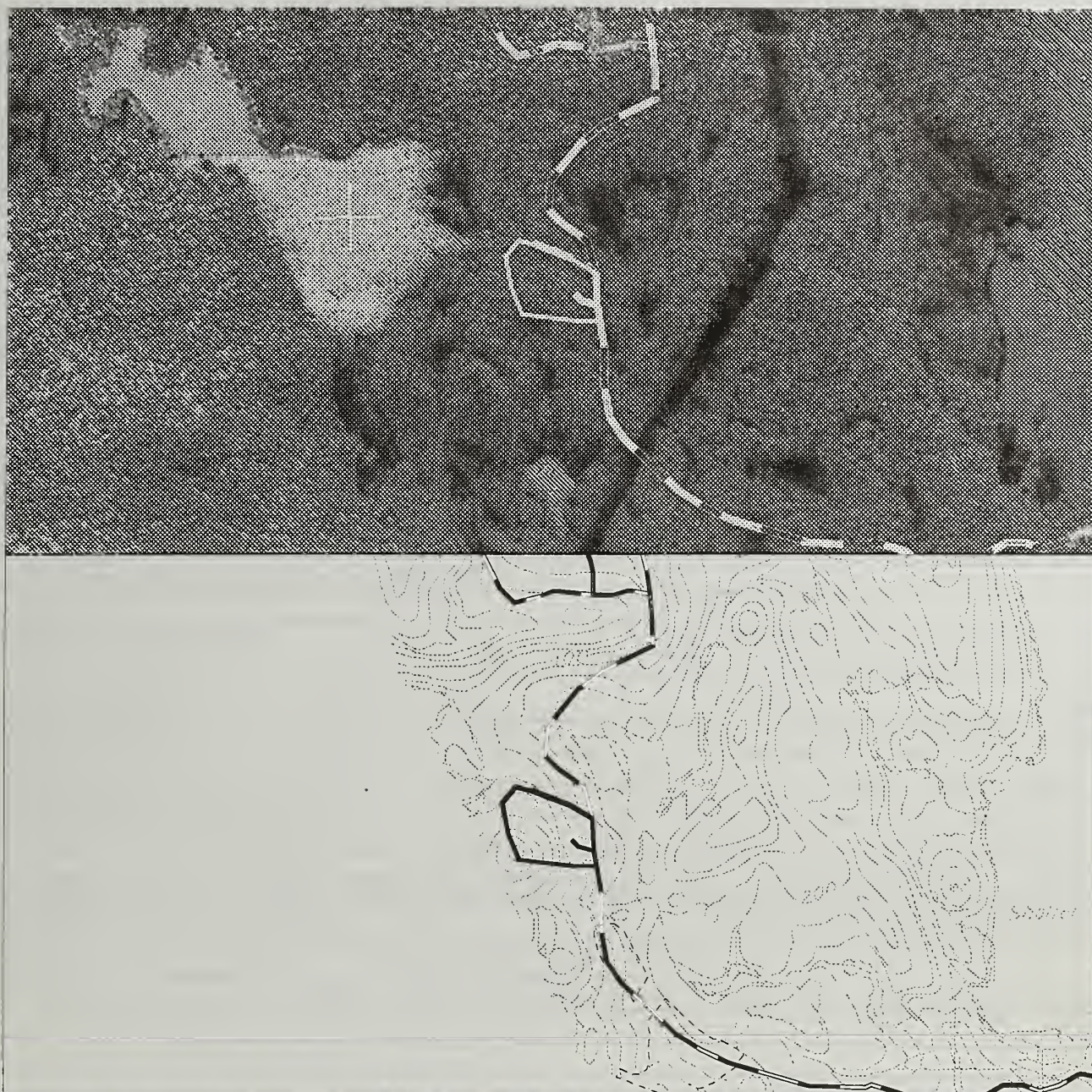
LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Projection - Stateplane

Feet
0 525 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c03



General Information:

Volume Class 4 8
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 0
 Total acres 8
 potential MBF 213
 VCU Number 7460
 located on USGS Quarter Quad(s) KTNC55E

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 111 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C04 **Planned Acres:** 5.0 **Estimated Volume:** 137.2 **In Alternatives:** 2, 3, 0, 0, 7
Silvicultural System : See section **Number of Settings:** 1 **Quad:** KTNC5SE **Photo:** 1390-23 **Logging systems:** - RS
Management Area: K32 **VCU Number:** 746 **Watershed Code:** D79A **WAA Number:** 510 **NOI Unit:** 776 **Original LSTA Unit:** 746-776

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 5.0 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 **Aspect:** NE
Volume class breakdown: Class 4: 5.0 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 **Low Productive** 0.0
Visuals: Seen 0.0 Not Seen 5.0 **VQOs:** PR- 0.0 MM- 5.0 M- 0.0 P- 0.0 R- 0.0
Recreation: Primary ROS Code RM High VAC 5.0 Intermediate VAC 0.0 Low VAC 0.0 Roadless 0.0
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 Soils: 0.0
Mass movement Index: Low 5.0 Medium 0.0 High 0.0 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 0.0
Wetland Information: Wetland 3.3 Mix Wetland 0.0 Riparian Soil 0.0 Site Productivity Classes 1- 0.0 2- 5.0 3- 0.0 4- 0.0
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 3.9 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 5.0
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit is made up of low volume western hemlock and mixed conifer plant series on poorly drained organic (wetland) soils (BMP 12.5). Recommend at least partial log suspension during yarding (BMP 13.9). Shovel logging would achieve this on much of this unit. NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations.

Engineering Input

Coho/Pink/Chum timing (June 15 - August 7) may apply to all road construction and/or drainage installations.

Fish/Watershed Input

Class II MC2 stream northeast (TTRA): 100 foot no cut buffer (BMP 12.6, 12.6a).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/29/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

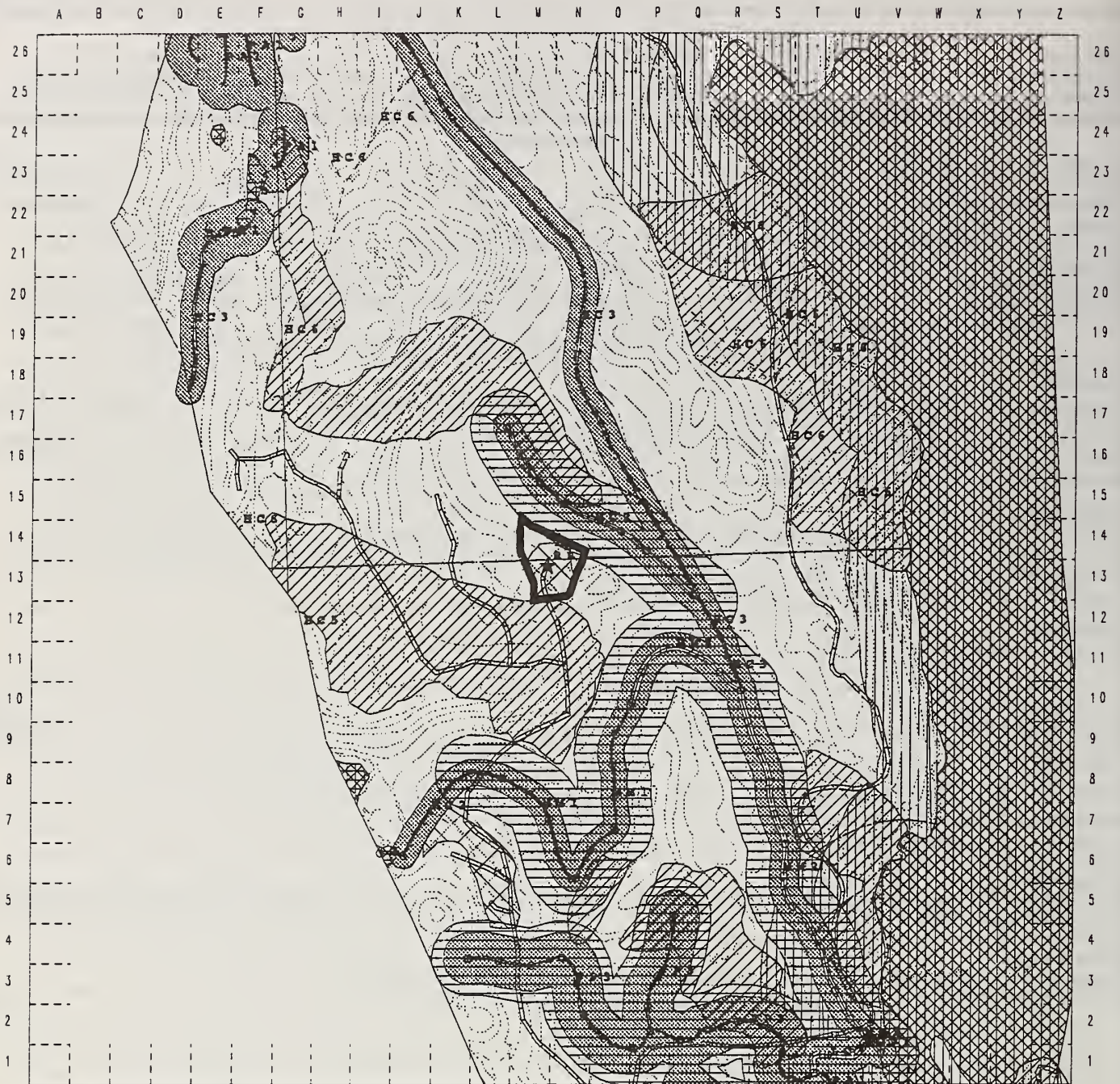
The North Saddle Lakes area is known to contain areas of carbonate rock and karst features. If karst features are identified during unit layout, follow Ketchikan Area cave management direction. NRB 8/10/95

Silviculture Input

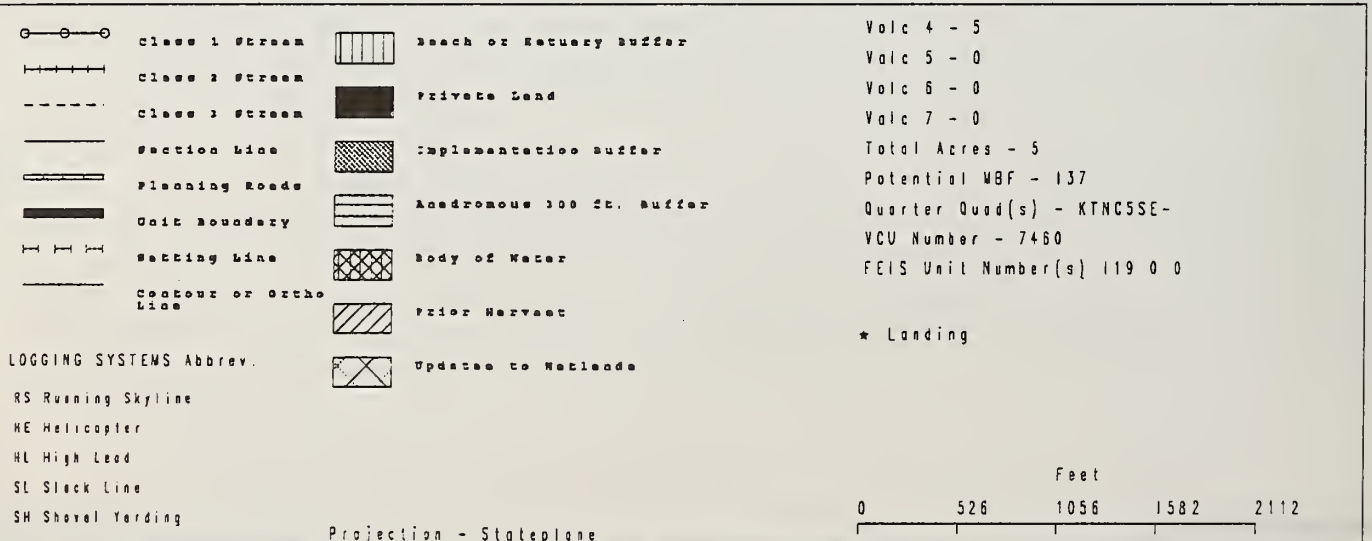
Moderate productivity with small areas of Hydric soils that will need to be planted. (3 acres) CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C04

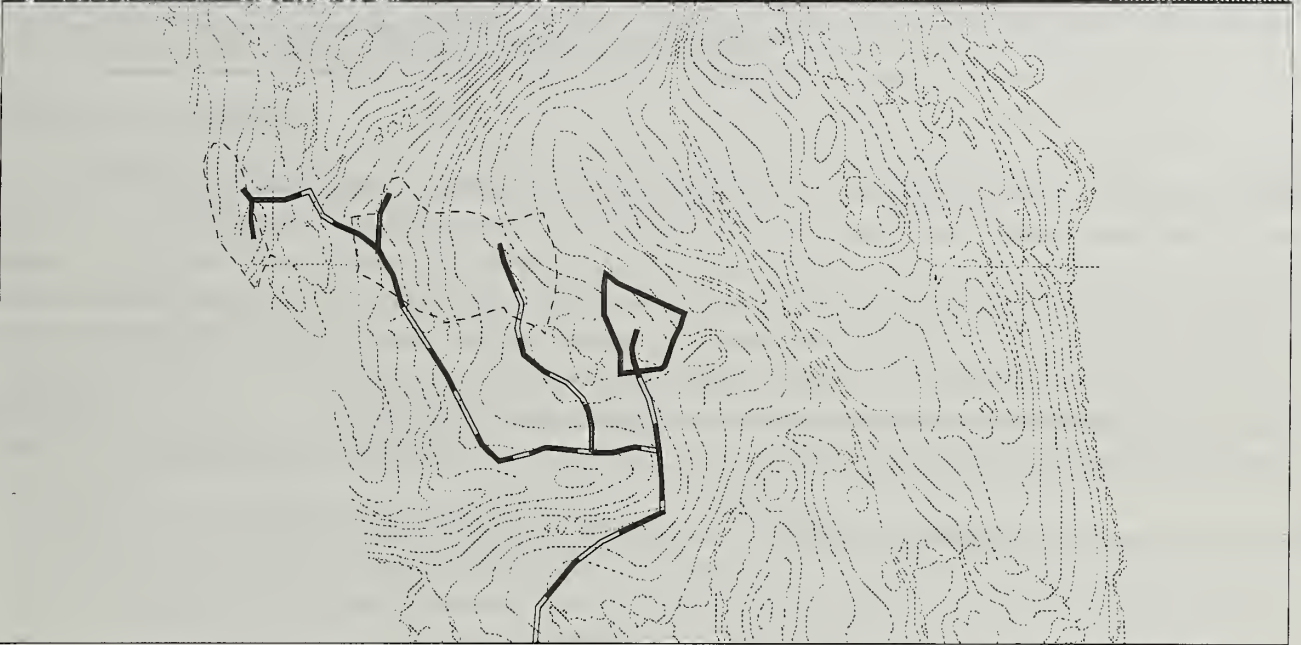
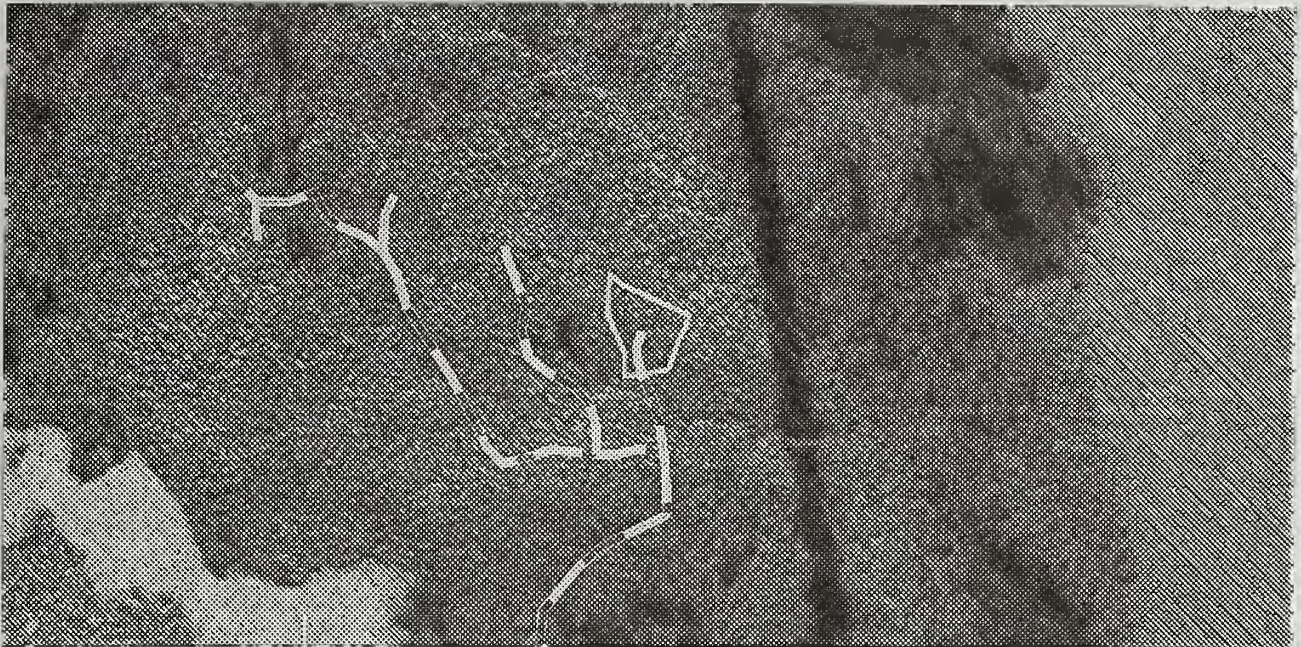
Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98, /tstiles/rcf/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c04



General Information:

Volume Class 4 5
Volume Class 5 0
Volume Class 6 0
Non Volume Class 0
Total acres 5
potential MBF 137
VCU Number 7460

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
119 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC5SE

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C05 Planned Acres: 20.1 Estimated Volume: 605.5 In Alternatives: 2, 3, 0, 0, 7
 Silvicultural System: See section Number of Settings: 1 Quad: KTNC5SE Photo: 1390-23 Logging systems: - RS
 Management Area: K32 VCU Number: 746 Watershed Code: D79A WAA Number: 510 NOI Unit: 779 Original LSTA Unit: 746-779

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 19.9 Spruce 0.0 Mixed Hem/Spr 0.3 Nonforested 0.0 Aspect: E
 Volume class breakdown: Class 4: 11.7 Class 5: 8.1 Class 6: 0.0 Class 7: 0.0 Low Productive 0.0
 Visuals: Seen 9.5 Not Seen 10.6 VQOs: PR- 0.0 MM- 10.6 M- 9.5 P- 0.0 R- 0.0
 Recreation: Primary ROS Code RM High VAC 14.0 Intermediate VAC 6.1 Low VAC 0.0 Roadless 0.0
 Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 Soils: 0.0
 Mass movement Index: Low 2.4 Medium 17.7 High 0.0 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 0.0
 Wetland Information: Wetland 2.4 Mix Wetland 0.0 Riparian Soil 0.0 Site Productivity Classes 1- 0.0 2- 2.4 3- 0.0 4- 17.7
 High Value Habitat: Sitka Black-Tail Deer- 0.1 Marten- 12.6 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 15.8
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

No concerns. NRB 8/24/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations.

Engineering Input

There are no engineering mitigation measures anticipated for this unit.

Fish/Watershed Input

One water quality stream flows through the middle of this unit (BMP 12.6a). SPL 1/3/95 Recommend that yarding be split on this stream and that full log suspension be maintained when yarding across the stream (BMP 13.9). trees be felled away from the stream-course and slash be removed within 48 hours (BMP 13.16). Variable width slope-break buffers may also be required (BMP 12.6a) NRB 8/24/95

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

Portion of unit may be seen from North Saddle lakes. Identified VQO is maximum modification. Analyze cumulative effects with shelter cove harvest. WEA 9/30/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

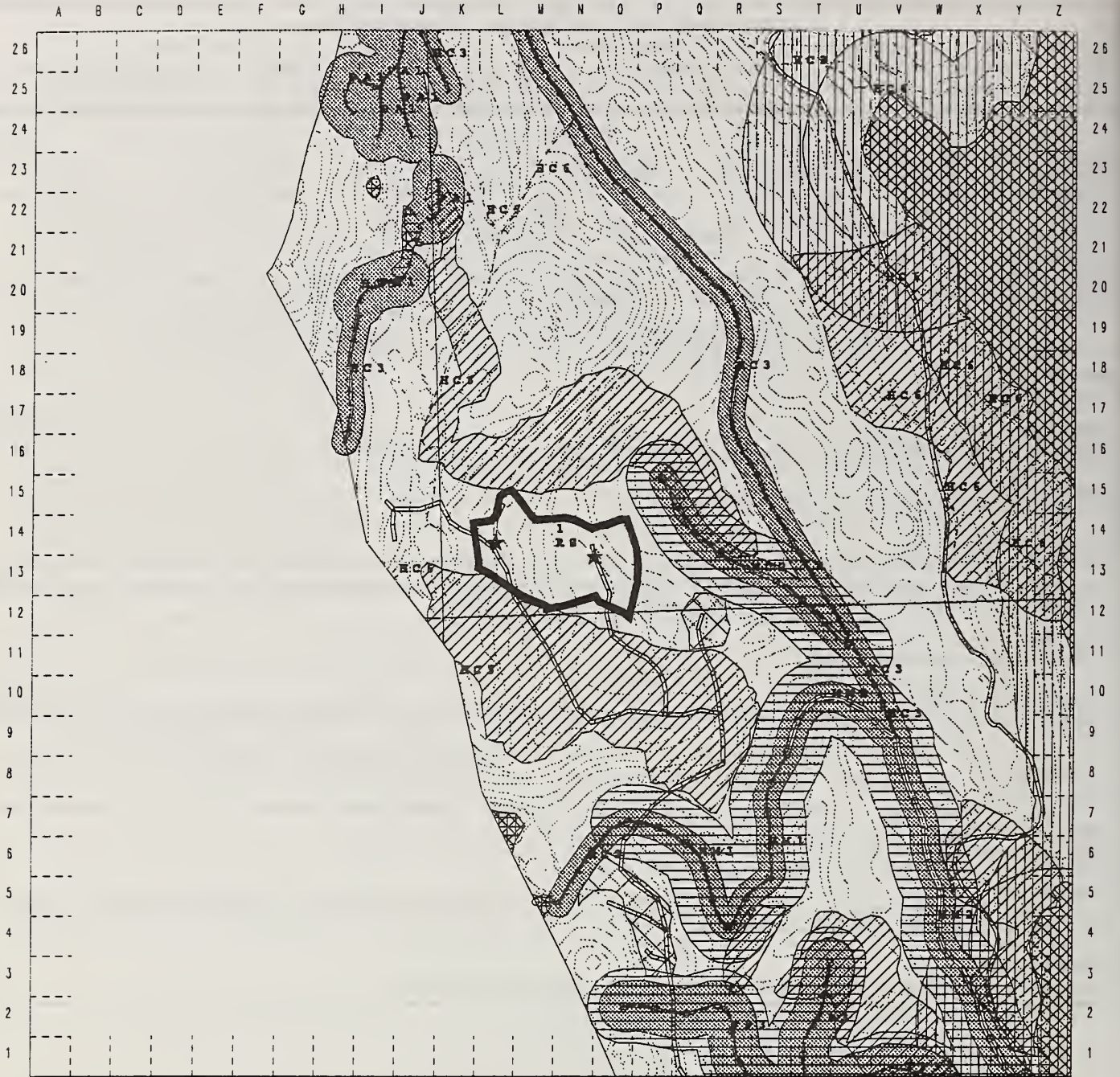
The North Saddle Lakes area is known to contain some areas of carbonate rock and karst features. If karst features are identified during unit layout, follow Ketchikan Area cave management direction. NRB 8/10/95

Silviculture Input

Low productivity. Monitor regeneration to determine if planting will be necessary. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C05

Napscale 1:15840 (4 inch to Mile)
Created 8-14-96, //sfiles/ret/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setting Line		Updates to Wetlands
	Contour or Ortho Line		

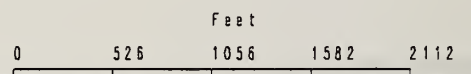
Volc 4 - 12
Volc 5 - 8
Volc 6 - 0
Vale 7 - 0
Total Acres - 20
Potential MBF - 603
Quarter Quad(s) - KTNCSSE-
VCU Number - 7460
FEIS Unit Number(s) 120 0 0

* Landing

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Projection - Stateplane



Upper Carrol ROD Unit Schematic for unit c05



General Information:

Volume Class 4 12

Volume Class 5 8

Volume Class 6 0

Non Volume Class 0

Total acres 20

potential MBF 603

VCU Number 7460

located on USGS Quarter Quad(s) KTNC5SE

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:

120 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C06 **Planned Acres:** 5.0 **Estimated Volume:** 154.6 **In Alternatives:** 2, 3, 0, 0, 7
Silvicultural System: See section **Number of Settings:** 1 **Quad:** KTNC5SE **Photo:** 1390-23 **Logging systems:** - RS
Management Area: K32 **VCU Number:** 746 **Watershed Code:** D79A **WAA Number:** 510 **NOI Unit:** 780 **Original LSTA Unit:** 746-780

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type:	Cedar 0.0	Hemlock 4.3	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: W
Volume class breakdown:	Class 4: 0.0	Class 5: 4.3	Class 6: 0.0	Class 7: 0.0	Low Productive 0.7	
Visuals:	Seen 5.1	Not Seen 0.0	VQOs:		PR- 3.6	MM- 0.0
					M- 0.0	P- 0.0
Recreation:	Primary ROS Code SPNM	High VAC 2.1	Intermediate VAC 2.9	Low VAC 0.0	Roadless 0.0	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 0.6	Soils: 0.0		
Mass movement Index:	Low 0.2	Medium 4.9	High 0.0	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 0.0
Wetland Information:	Wetland 0.2	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes		
				1- 0.0	2- 0.2	3- 0.0
High Value Habitat:	Sitka Black-Tail Deer- 3.8	Marten- 3.8	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 3.8	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

No concerns. NRB 8/24/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations.

Engineering Input

There are no engineering mitigation measures anticipated for this unit.

Fish/Watershed Input

No concerns. NRB 8/24/95

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

Unit can be seen from North Saddle lakes potential recreation site. Proposed VQO is partial retention.

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

The North Saddle Lakes area is known to contain some carbonate rock and karst features. If karst features are identified during unit layout, follow Ketchikan Area cave management direction and guidelines. NRB 8/10/95

Silviculture Input

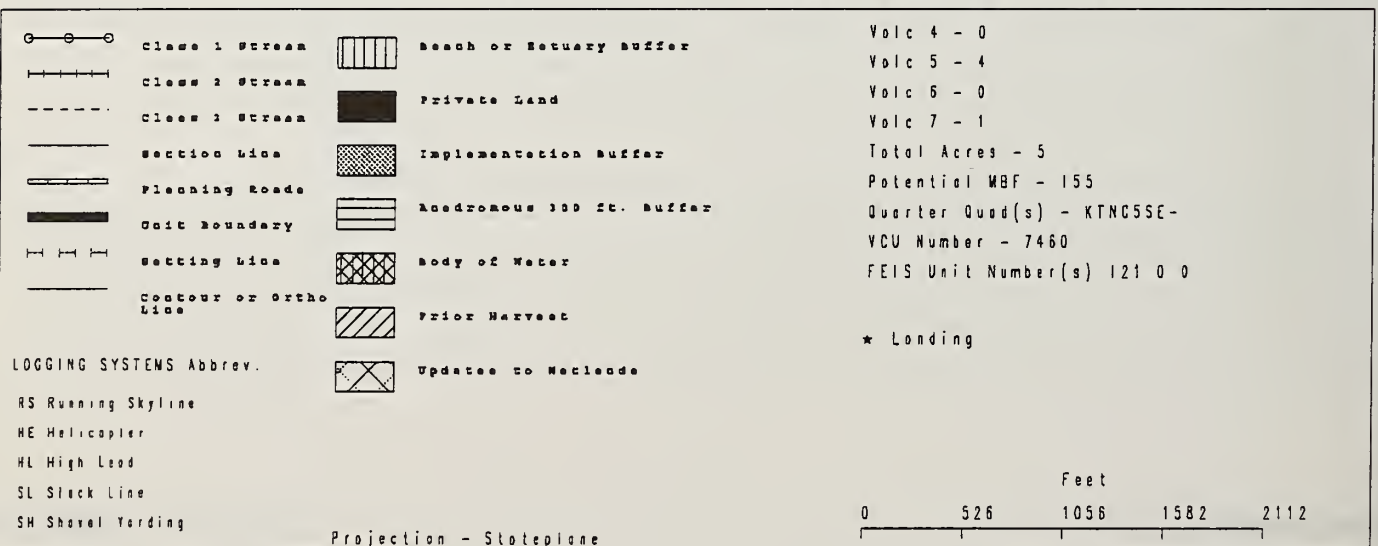
High productivity. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C06

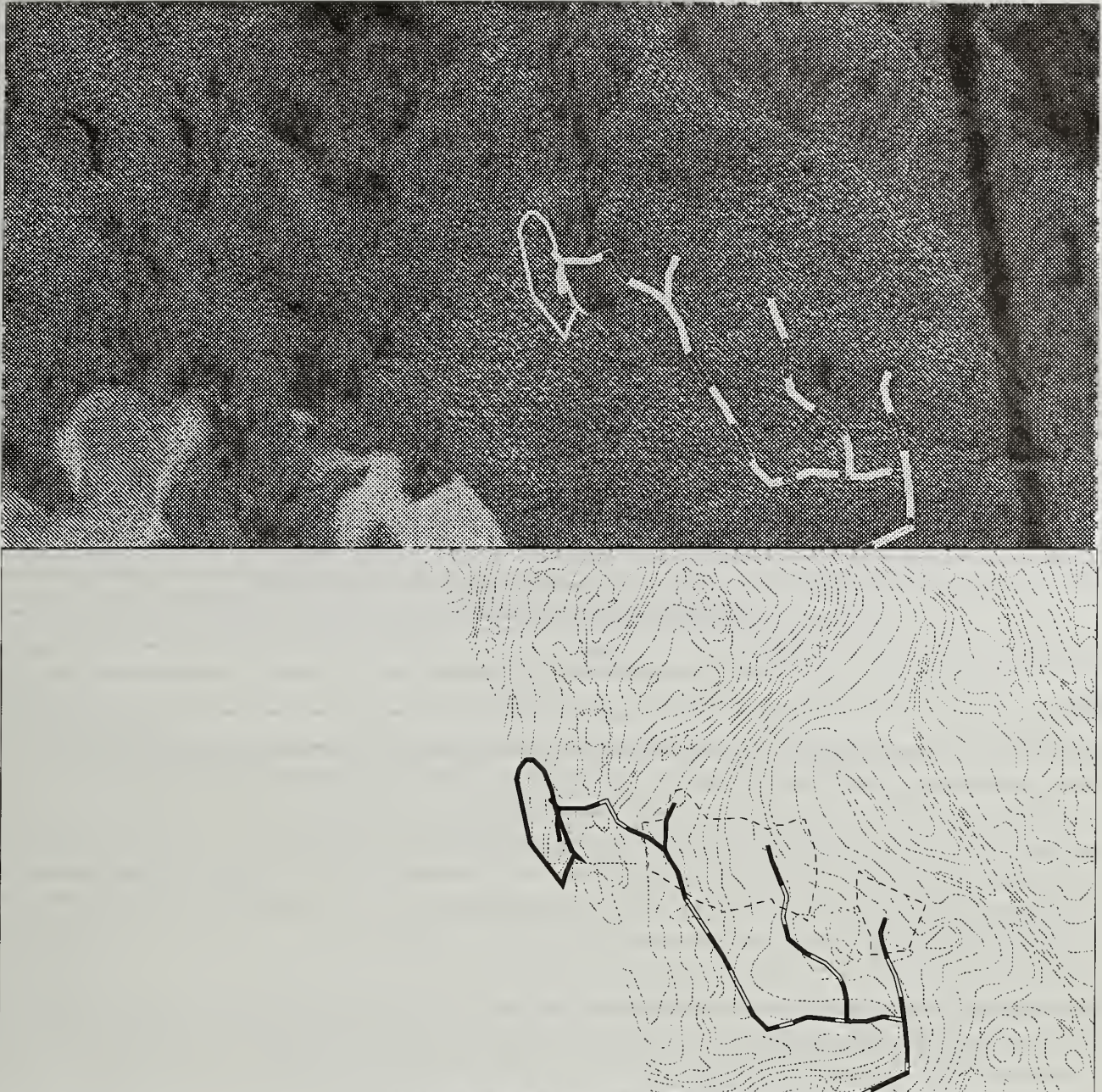
Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98, /tstiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c06



General Information:

Volume Class 4 0
Volume Class 5 4
Volume Class 6 0
Non Volume Class 1
Total acres 5
potential MBF 155
VCU Number 7460
located on USGS Quarter Quad(s) KTNC5SE

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
121 0 0

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C07 **Planned Acres:** 32.6 **Estimated Volume:** 1,083.9 **In Alternatives:** 2, 3, 5, 6, 7
Silvicultural System: See section **Number of Settings:** 5 **Quad:** KTNC5NE **Photo:** 1673-159 **Logging systems:** - RS- HE
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D72A **WAA Number:** 510 **NOI Unit:** 353,356 **Original LSTA Unit:** 744-353

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 30.9 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 **Aspect:** NW
Volume class breakdown: Class 4: 0.0 Class 5: 30.9 Class 6: 0.0 Class 7: 0.0 **Low Productive** 1.7
Visuals: Seen 32.6 Not Seen 0.0 **VQOs:** PR- 26.1 MM- 0.0 M- 6.5 P- 0.0 R- 0.0
Recreation: Primary ROS Code RM High VAC 0.0 Intermediate VAC 12.4 Low VAC 20.2 **Roadless** 9.0
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 8.0 **Soils:** 0.0
Mass movement Index: Low 0.0 Medium 31.9 High 0.8 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 0.3 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 0.0 3- 3.8 4- 29.0
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 12.0 River Otter- 0.2 Bald Eagle- 0.0 Black Bear- 21.9
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

No concerns. NRB 8/29/95

Timber Input

Planned logging systems design for this unit is Running Skyline and Helicopter. Confirm final road and landing locations. 1000' estuary buffer required.

Engineering Input

Pink/Chum timing (June 1 - August 7) may apply for all road construction and/or drainage installations (BMP 14.6). High MMI soils. Road construction must minimize landslide potential (BMP 14.7)

Fish/Watershed Input

Two water quality streams (HC5 central and HC6 south) are located in this unit (BMP 12.6a). SPL 1/3/95 Recommend that yarding be split on these streams and that full log suspension be maintained when yarding across the stream (BMP 13.9), trees be felled away from the stream-course and slash be removed within 48 hours (BMP 13.16). Variable width slope-break buffers may also be required (BMP 12.6a) NRB 9/18/95

Wildlife Input

Harvest operations restricted to April 1 to October 31 to protect trumpeter swan resting/feeding areas. Modify the west unit boundary to avoid the 1,000 foot estuary buffer.

Recreation / Visuals Input

Unit may be seen from Carroll Inlet. Identified VQO is partial retention. Beach, estuary buffer and uncut adjacent standing timber will help to screen unit. WEA 9/30/95

Lands Input

No concerns. NRB 8/29/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

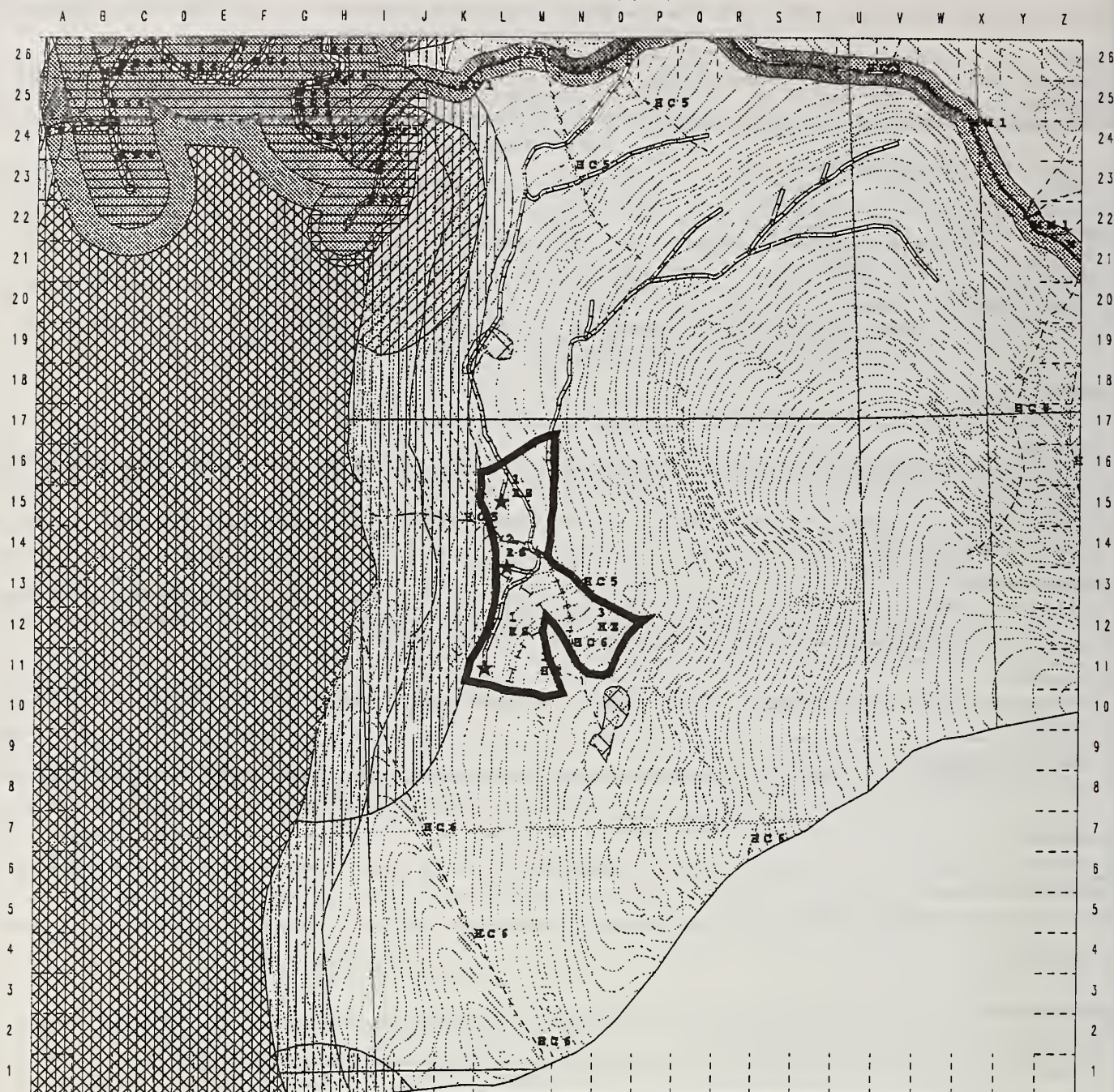
No concerns. 8/29/95

Silviculture Input

High and Moderate productivity. Consideration should be given to a diameter limit cut leaving all trees 13" DBH and under standing in helicopter portion. CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C07

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98, /1stiles/rcf/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Settling Line		Updates to Wetlands
	Contour or Ortho Line		

Volc 4 - 0
Volc 5 - 31
Volc 6 - 0
Volc 7 - 2
Total Acres - 33
Potential MBF - 1084
Quarter Quad(s) - KTNC5NE-
VCU Number - 7440
FEIS Unit Number(s) 35 38 0

* Landing

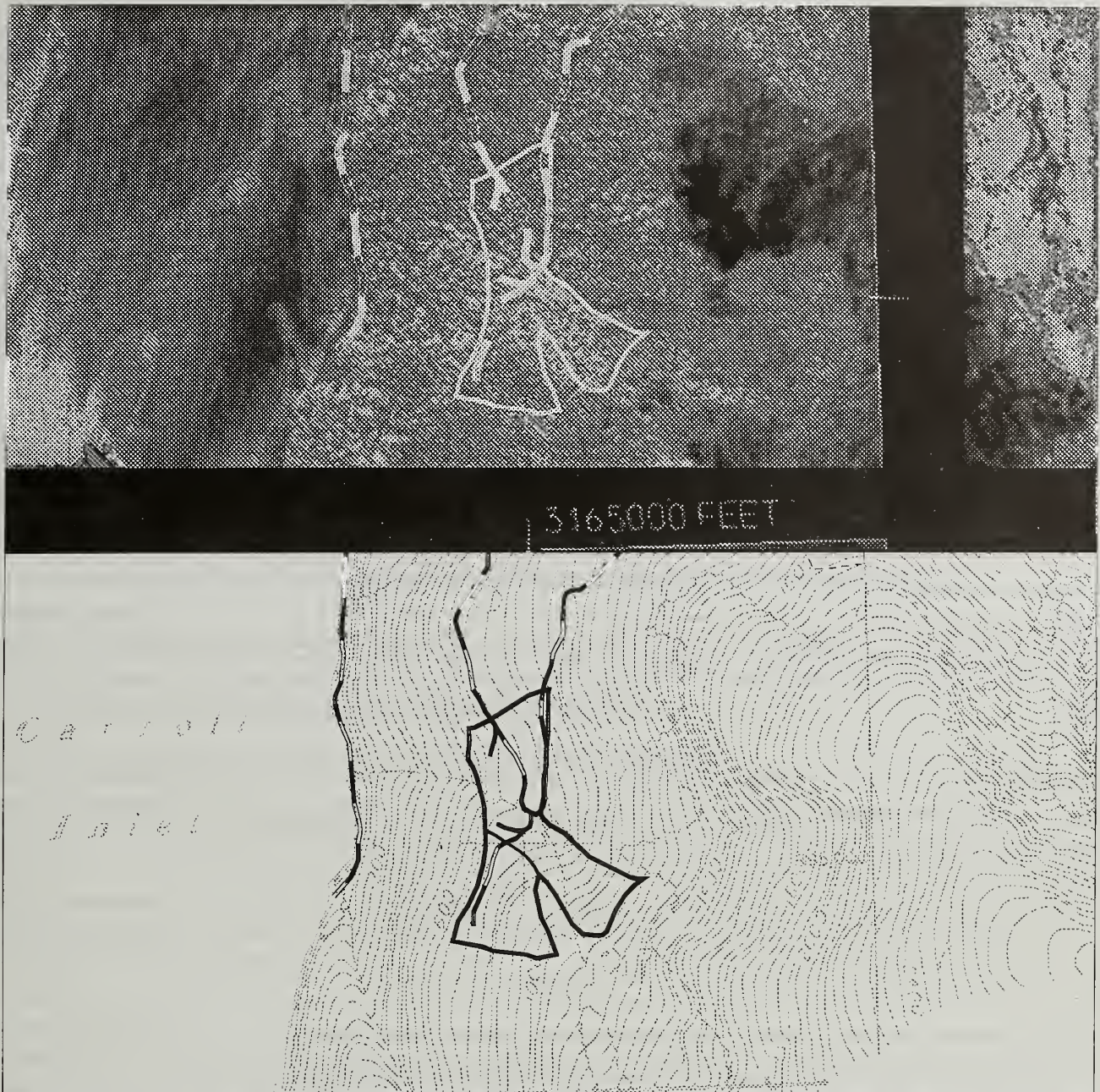
LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Sleek Line
SH Shovel Yarding

Projection - Stateplane



Upper Carrol ROD Unit Schematic for unit c07



General Information:

Volume Class 4 0
 Volume Class 5 31
 Volume Class 6 0
 Non Volume Class 2
 Total acres 33
 potential MBF 1084
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 35 38 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC5NE

Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C08 Planned Acres: 77.7 Estimated Volume: 3,503.5 In Alternatives: 2, 3, 5, 6, 7
 Silvicultural System: See section Number of Settings: 9 Quad: KTNC5NE Photo: 1673-160 Logging systems: - RS, HE
 Management Area: K32 VCU Number: 744 Watershed Code: D71A WAA Number: 510 NOI Unit: 346,1002,345 Original LSTA Unit: 744-346

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 6.2 Spruce 0.0 Mixed Hem/Spr 85.0 Nonforested 0.0 Aspect: NW,NE
 Volume class breakdown: Class 4: 0.0 Class 5: 0.0 Class 6: 77.7 Class 7: 0.0 Low Productive 0.0
 Visuals: Seen 74.3 Not Seen 16.9 VQOs: PR- 14.4 MM- 16.9 M- 59.9 P- 0.0 R- 0.0
 Recreation: Primary ROS Code RM High VAC 0.0 Intermediate VAC 50.2 Low VAC 5.5 Roadless 64.1
 Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 9.1 Soils: 0.0
 Mass movement Index: Low 0.0 Medium 46.5 High 44.8 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 0.0
 Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.2 Site Productivity Classes 1- 0.2 2- 0.0 3- 0.0 4- 91.0
 High Value Habitat: Sitka Black-Tail Deer- 9.6 Marten- 27.2 River Otter- 8.0 Bald Eagle- 3.8 Black Bear- 75.7
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Some of this unit is made up of high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension when yarding (BMP 13.9). The lower road (K-14 to O-13) will require some full-bench construction across steep slopes (BMP 14.7). Also, the upper slopes in this unit (L-12 and O-12), above the road, have a high potential for landslides, MMI=3 (BMP 13.5). Recommend at least partial log suspension when yarding (BMP 13.9). NRB 8/29/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Northeastern corner of planned unit maybe a blindlead depending on final access road location. If upper road is not required for other units, switch logging systems design to helicopter.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7) Pink/Chum timing (June 1 - August 7) may apply for all road construction and/or drainage installations (BMP 14.6). Oversteepened slopes may require full bench construction and endhaul of waste (BMP 14.7).

Fish/Watershed Input

Class II MM1 stream northeast: 120 foot no cut buffer required (BMP 12.6, 12.6a). A Class III HCS water quality stream flows through the middle of this unit (BMP 12.6a). SPL 1/3/95 Recommend that yarding be split on these streams and that full log suspension be maintained when yarding across the stream (BMP 13.9), trees be felled away from the stream-course and slash be removed within 48 hours (BMP 13.16). Variable width slope-break buffers may also be required for HCS water quality stream located along eastern boundary. (BMP 12.6a) NRB 9/18/95

Wildlife Input

Harvest operations restricted to April 1 to October 31 to protect trumpeter swan resting/feeding areas.

Recreation / Visuals Input

Unit may be visible from Carroll estuary. Identified VQO is partial retention and modification. Beach and estuary buffer as well as adjacent unit will help screen unit. WEA 9/30/95

Lands Input

No concerns. NRB 8/29/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 8/29/95

Silviculture Input

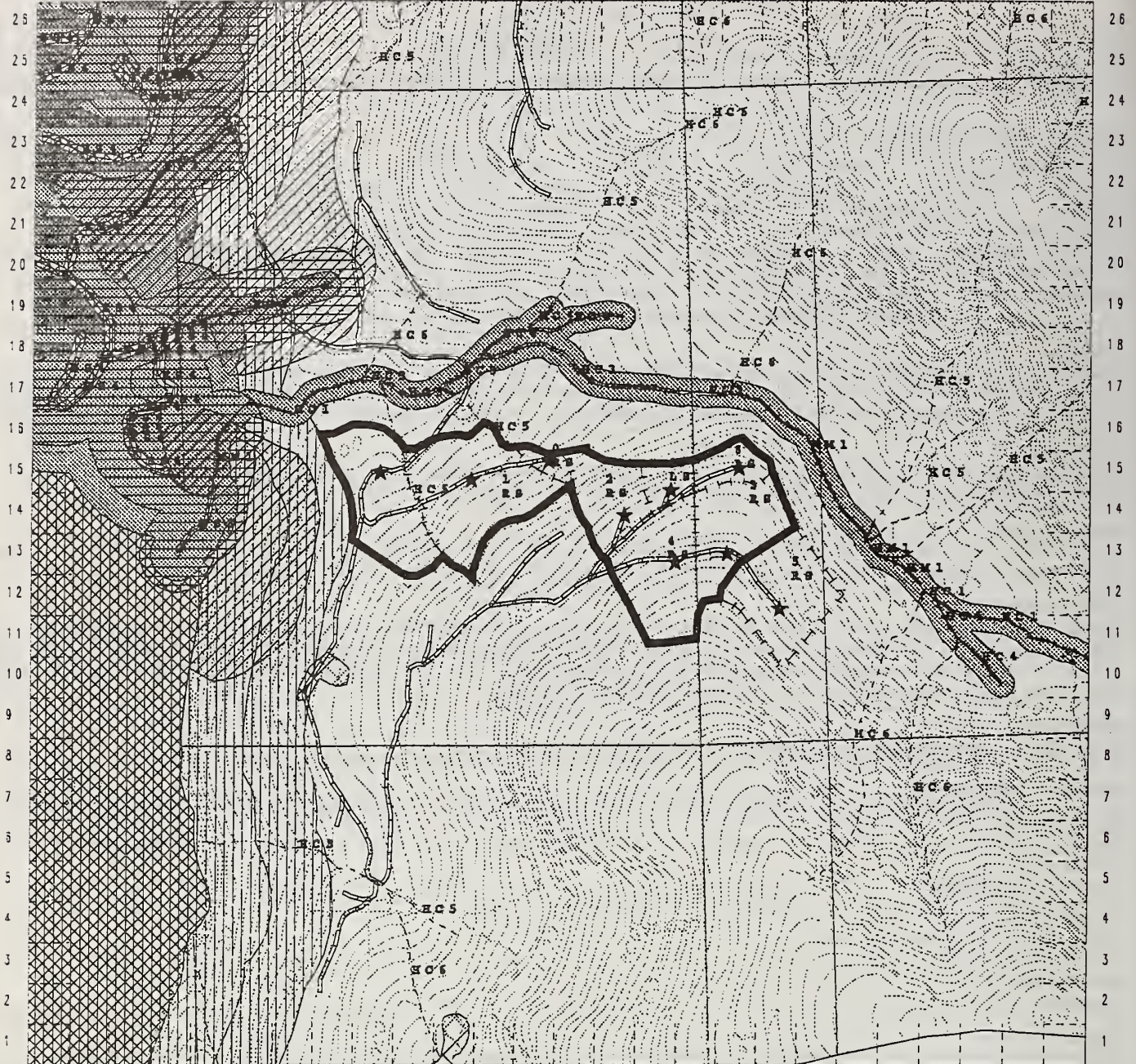
Highly productive with small areas of high elevation and high mass movement soils. Planting will be required, using Alaska yellow cedar if available. (8 acres) Consideration should be given to a diameter limit cut leaving all trees 13" DBH and under standing if helicopter yarded. Other areas have moderate productivity, with small areas of high elevation and high mass movement soils. Planting will be required, using Alaska yellow cedar if available. (3 acres) CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C08

NapScale 1:15840 (4 inch to Mile)
Created 8-14-96, //sfiles/ref/library/gis/upperc5/rodcard/rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

- | | | | |
|--|-----------------------|--|---------------------------|
| | Class 1 Stream | | Beach or Estuary Buffer |
| | Class 2 Stream | | Private Land |
| | Class 3 Stream | | Implementation Buffer |
| | Section Line | | Anadromous 100 ft. Buffer |
| | Planning Roads | | Andy of Water |
| | Gait Boundary | | Prior Harvest |
| | Setting Line | | Updates to Wetlands |
| | Catcher or Ortho Line | | |

Valc 4 - 0
Valc 5 - 0
Valc 6 - 78
Valc 7 - 0
Total Acres - 78
Potential WBF - 3504
Quarter Quad(s) - KTNC4NW-KTNC5NE
VCU Number - 7440
FEIS Unit Number(s) 3 27 28

* Landing

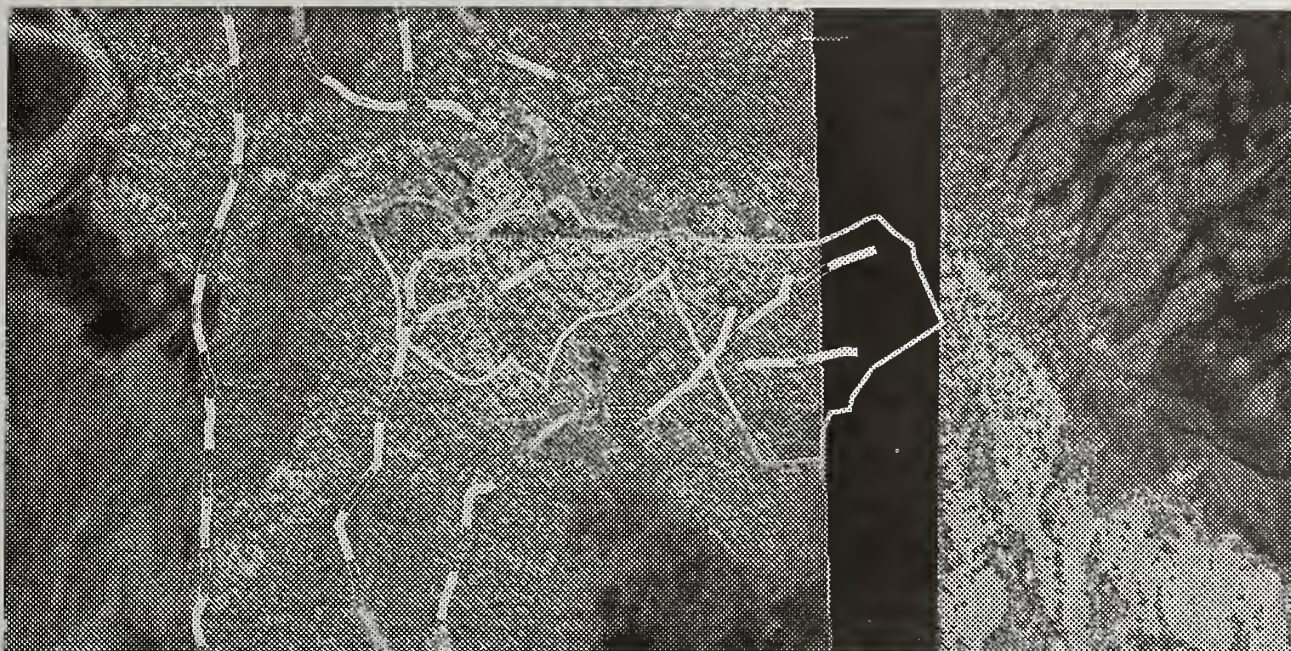
LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c08



General Information:

Volume Class 4 0
 Volume Class 5 0
 Volume Class 6 78
 Non Volume Class 0
 Total acres 78
 potential MBF 3504
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 3 27 28

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW KTNC5NE

Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C09	Planned Acres: 18.4	Estimated Volume: 830.3	In Alternatives: 2, 3, 5, 6, 0
Silvicultural System: See section	Number of Settings: 4	Quad: KTNC5NE	Photo: 1673-160
Management Area: K32	VCU Number: 744	Watershed Code: D71A	WAA Number: 510
		NOI Unit: 359,358	Original LSTA Unit: 744-359

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0	Hemlock 14.3	Spruce 0.0	Mixed Hem/Spr 4.1	Nonforested 0.0	Aspect: SW
Volume class breakdown: Class 4: 0.0	Class 5: 0.0	Class 6: 18.4	Class 7: 0.0	Low Productive 0.0	
Visuals: Seen 18.5	Not Seen 0.0	VQOs: PR- 12.2	MM- 0.0	M- 6.3	P- 0.0 R- 0.0
Recreation: Primary ROS Code RM	High VAC 0.0	Intermediate VAC 13.7	Low VAC 4.7	Roadless 0.0	
Riparian MA: Class 1 Stream: 0.0	Class 2 Stream: 0.2	Class 3 Stream: 3.6	Soils: 0.0		
Mass movement Index: Low 0.0	Medium 3.1	High 14.9	Very High 0.5	Unknown 0.0	Slopes Greater Than 72% 0.0
Wetland Information: Wetland 0.0	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0	2- 0.0	3- 0.0 4- 18.40.

High Value Habitat: Sitka Black-Tail Deer- 10.9 Marten- 12.0 River Otter- 1.2 Bald Eagle- 0.0 Black Bear- 12.0
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

The east central part of this unit is made up of a small area, about 2 acres, of very high landslide potential soils, MMI=4 (BMP 13.5). Much of the rest of the unit has a high potential for landslides, MMI=3. Recommend at least partial log suspension during yarding to minimize soil disturbance (BMP 13.9). Road construction through this unit will require some full bench construction, with end haul and disposal of overburden (BMPs 14.7, 14.12). Recommend disposal area to the south, above the next road junction.

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Northeastern portion of planned unit may become a blind lead depending on final road location. Verify feasibility of providing suspension requirements (see soils input) in relation to final road location and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste material. (BMP 14.7)
 Pink/Chum timing (June 1 - August 7) may apply for all road construction and/or drainage installations (BMP 14.6).

Fish/Watershed Input

Class II HC3 stream south (TTRA): 100 foot no cut buffer (BMP 12.6 and 12.6a).
 Class III HC5 stream east: split yarding and full suspension required (BMP 13.16).

Wildlife Input

Harvest operations restricted to April 1 to October 31 to protect trumpeter swan resting/feeding areas.

Recreation / Visuals Input

Unit may be seen from Carroll estuary. Identified VQO is partial retention. WEA 9/30/95

Lands Input

No concerns. NRB 8/29/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 8/29/95

Silviculture Input

Highly productive with small areas of high mass movement soils. Planting will be required, using Alaska yellow cedar if available. (3 acres). Consider shelterwood system to alleviate soil concerns. Other areas have moderate productivity with small areas of Hydric soils that will need to be planted. (3 acres) CBG 10/16/95

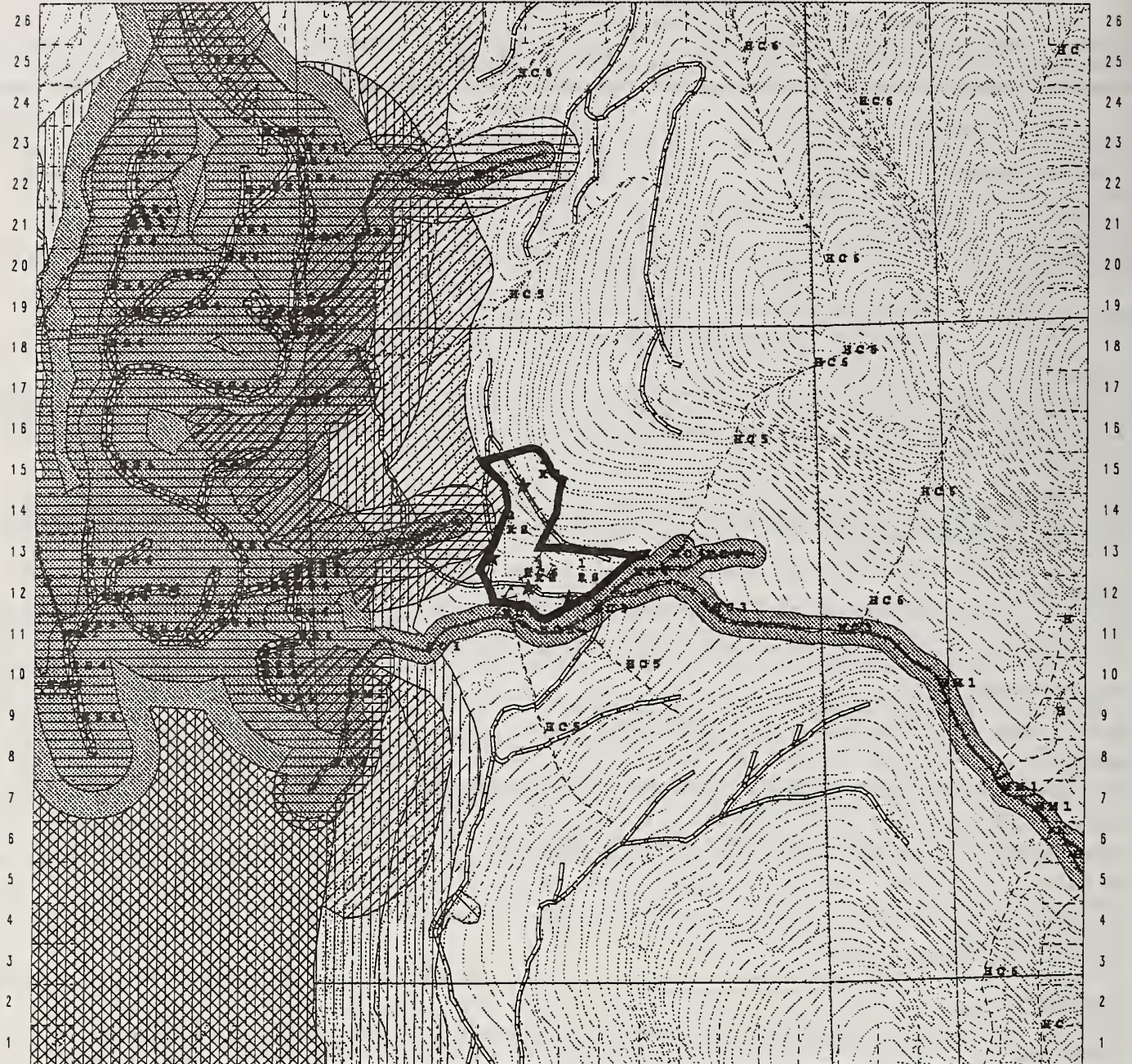
Upper Carroll Study Area Unit Schematic - ROD Unit C09

Mapscale 1:15840 (4 inch to Mile)

Created 8-14-96, /s:\files\ref\library\gis\upperc5\rodcard\rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anonymous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setting Line		Updates to Wetlands
	Catcher or Ortho Line		

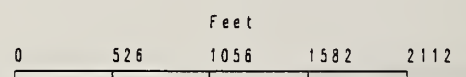
Volc 4 - 0
Volc 5 - 0
Volc 6 - 18
Volc 7 - 0
Total Acres - 18
Potential MBF - 830
Quarter Quad(s) - KTNCSNE-
VCU Number - 7440
FEIS Unit Number(s) 40 41 0

* Landing

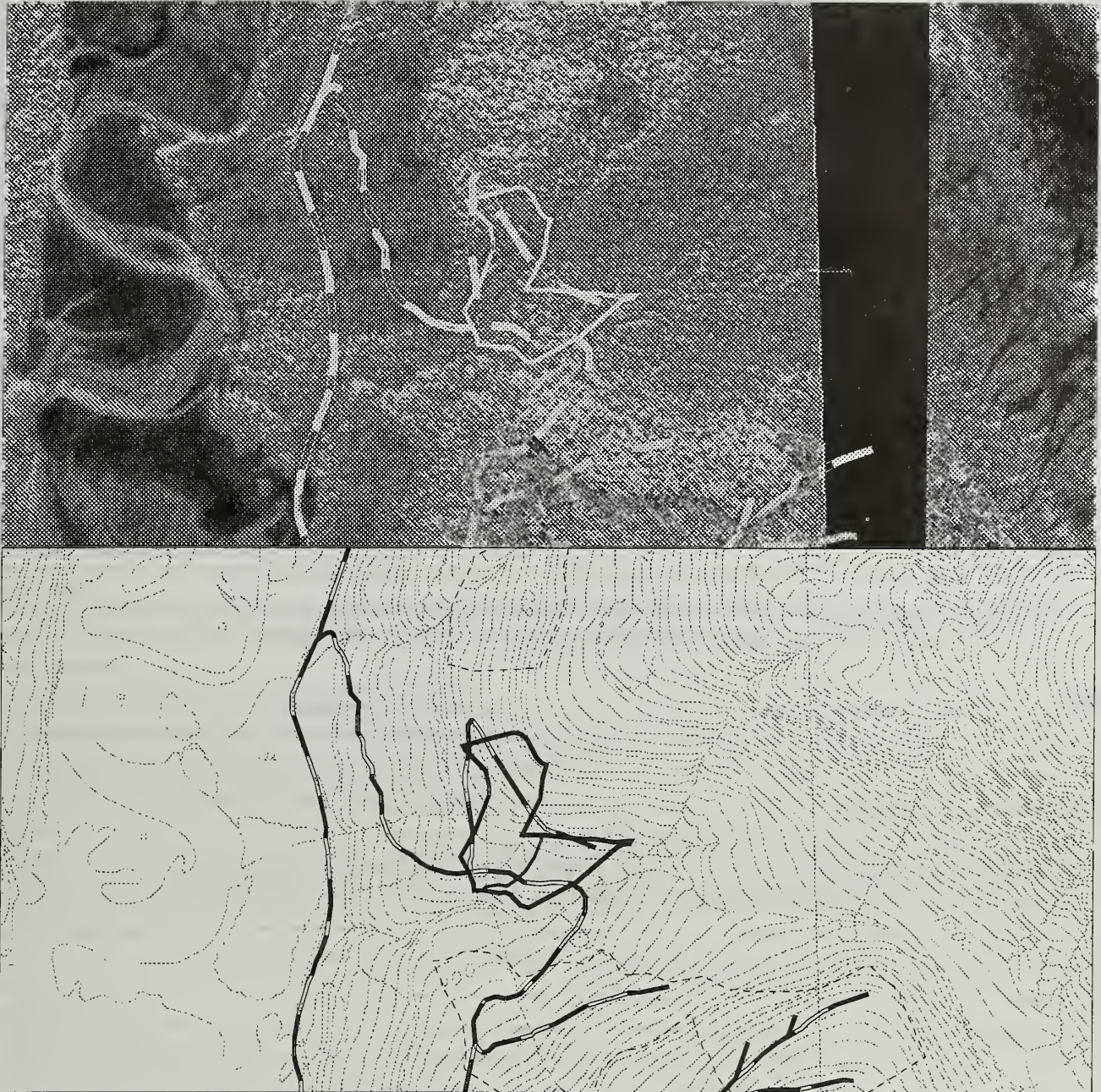
LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Projection - Stateplane



Upper Carrol ROD Unit Schematic for unit c09



General Information:

Volume Class 4 0
Volume Class 5 0
Volume Class 6 18
Non Volume Class 0
Total acres 18
potential MBF 830
VCU Number 7440

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
40 41 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC5NE

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C11 **Planned Acres:** 70.9 **Estimated Volume:** 3,176.7 **In Alternatives:** 2, 3, 5, 6, 7
Silvicultural System: See section **Number of Settings:** 7 **Quad:** KTNC5NE **Photo:** 1673-161 **Logging systems:** - RS, HE
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D70C **WAA Number:** 510 **NOI Unit:** 368, 366 **Original LSTA Unit:** 744-368

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 69.0 Spruce 0.0 Mixed Hem/Spr 1.9 Nonforested 0.0 **Aspect:** N, NW
Volume class breakdown: Class 4: 0.0 Class 5: 1.9 Class 6: 69.0 Class 7: 0.0 **Low Productive** 0.0
Visuals: Seen 39.3 Not Seen 31.5 **VQOs:** PR- 0.0 MM- 31.5 M- 39.3 P- 0.0 R- 0.0
Recreation: Primary ROS Code RM **High VAC** 31.8 **Intermediate VAC** 13.9 **Low VAC** 0.0 **Roadless** 6.5
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 8.2 **Soils:** 0.0
Mass movement Index: Low 0.0 Medium 59.6 High 10.9 Very High 0.5 Unknown 0.0 **Slopes Greater Than 72%** 0.9
Wetland Information: Wetland 1.4 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 0.0 3- 13.6 4- 57.3
High Value Habitat: Sitka Black-Tail Deer- 0.7 Marten- 17.3 River Otter- 6.7 Bald Eagle- 0.0 Black Bear- 68.8
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

North side of unit (J-16 to Q-15) consists of an extremely steep and potentially unstable, MMI=4, stream gorge which should not be included in the proposed harvest unit. Recommend that the lower unit boundary be located at the top of this slope break (BMP 13.5). The north end of the unit (N-15) contains some high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension when yarding (BMP 13.9). East (P-14) and west (J-16) ends of this unit contain high landslide potential soils (BMP 13.5). Recommend at least partial log suspension when yarded (BMP 13.9). Small area, 2 to 3 acres of forested wetland and open muskeg is located in the east central (L-15) part of the unit (BMP 12.5). This area is suitable for shovel logging (BMP 13.9). NRB 8/30/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Northern portion of planned unit is adjacent to a Class I/II stream with associated gorge. Determine feasibility of tying across TTRA buffer (need Stream Protection Plan) to include some or all of area adjacent to gorge. Modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7) Coho/Pink/Chum timing (June 1 - August 15) may apply for all road construction and/or drainage installations (BMP 14.6).

Fish/Watershed Input

Class I MM1/MM2 stream north (TTRA): 300 foot buffer (BMP 12.6a).
 Class III HC6 stream southern reach: 100 foot sideslope buffer (BMP 12.6)
 Class III HC6 stream northern reach: split yarding or full suspension required (BMP 13.16, 13.9)
 Class III HC5 stream west: split yarding or full suspension required (BMP 12.6a, 13.16)
 Class III HC6 stream east: split yarding or full suspension required (BMP 12.6a, 13.16)
 Class III HC5 stream east (borders unit): sideslope buffer (BMP 12.6a).

Wildlife Input

Snag distribution concerns were addressed in the Final EIS. Snag Patches are to be left along the northern boundary and in the stream buffer. Leave islands will be left that are compatible with logging systems and safe working conditions. Due to its proximity to the LTF, this unit has the same swan timing constraints as the LTF. Harvest operations prohibited from December 1 to January 31 to protect trumpeter swan resting/feeding areas.

Recreation / Visuals Input

Small portion of unit can be seen from Carroll estuary. Identified VQO is maximum modification. Adjacent uncut timber will help screen unit. WEA 9/30/95

Lands Input

No concerns. NRB 8/30/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

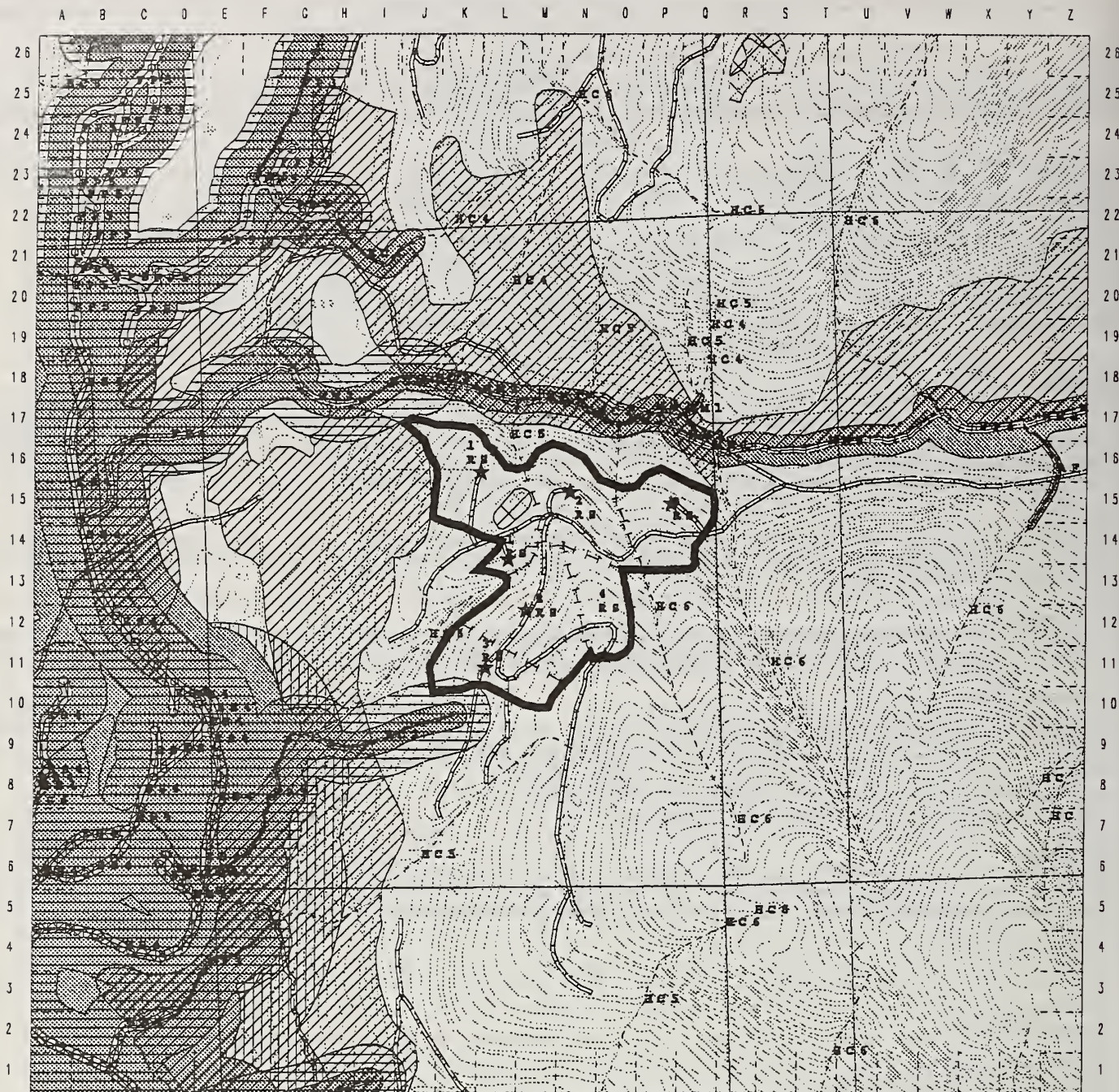
V-notch located in the east part (P-13 to O-15) of this unit. Recommend a wind-firm slope break buffer be maintained on this V-notch (BMP 13.16). NRB 8/30/95

Silviculture Input

Highly productive with small areas of high elevation and high mass movement soils. Plant using Alaska yellow cedar if available. (13 acres). CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C11

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98. //sfiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

Class 1 Stream Class 2 Stream Class 3 Stream Section Line Planning Roads Gait Boundary Setting Line Contour or Ortho Line	Beach or Estuary Buffer Private Land Implementation Buffer Roadway 300 ft. Buffer Body of Water Prior Harvest Updates to Wetlands	Valc 4 - 0 Valc 5 - 2 Valc 6 - 59 Valc 7 - 0 Total Acres - 71 Potential MBF - 3177 Quarter Quad(s) - KTNGSNE- VCU Number - 7440 FEIS Unit Number(s) 47 49 0 * Landing
--	---	--

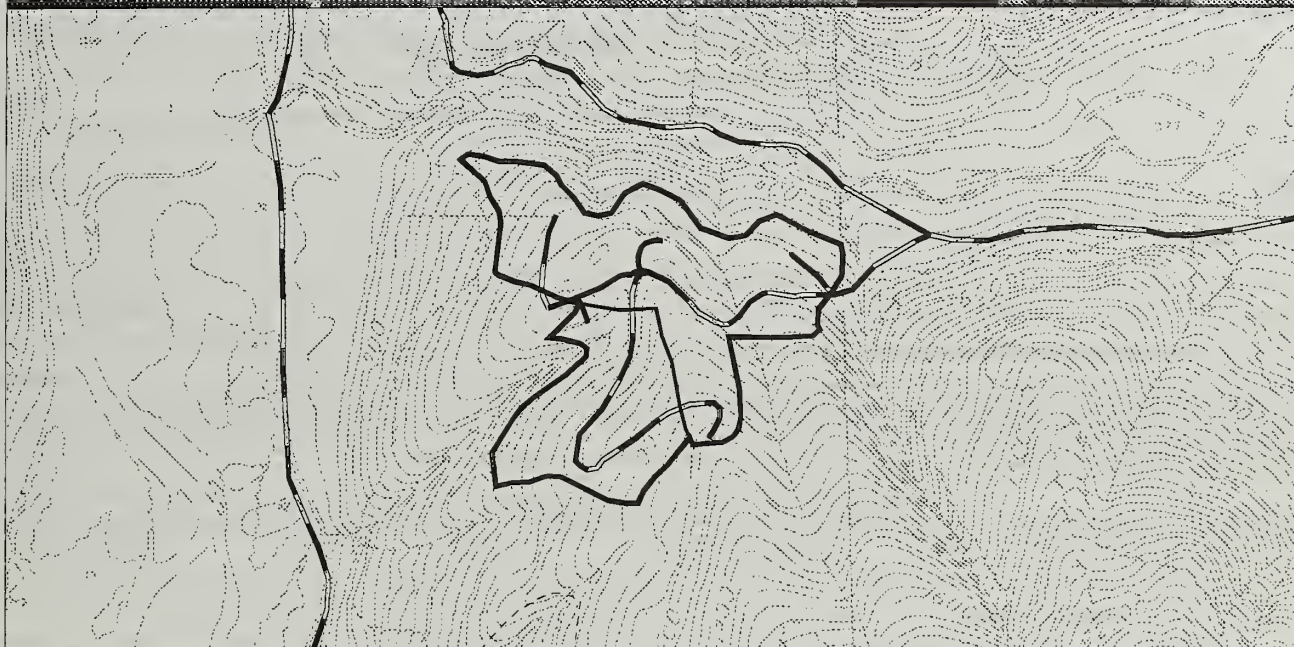
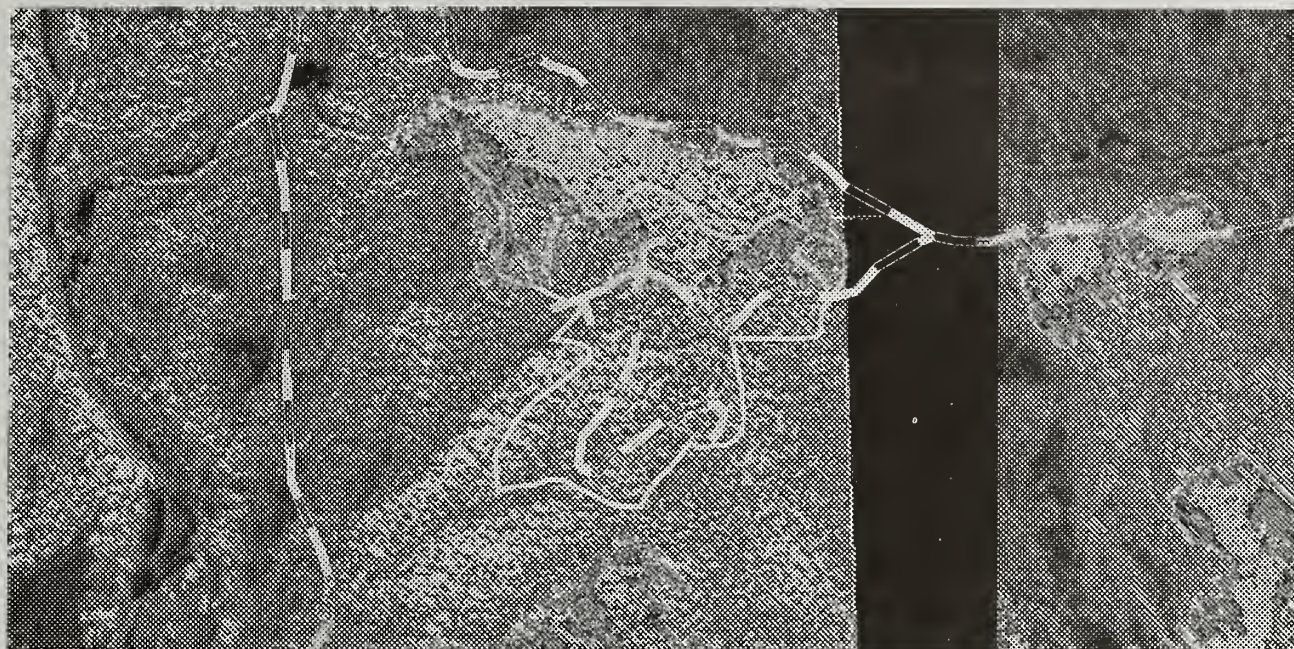
LOGGING SYSTEMS Abbrev.

RS Running Skyline
 HE Helicopter
 HL High Lead
 SL Slack Line
 SH Shovel Yarding

Projection - Stateplane

Feet
 0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c11



General Information:

Volume Class 4 0
 Volume Class 5 2
 Volume Class 6 69
 Non Volume Class 0
 Total acres 71
 potential MBF 3177
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 47 49 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC5NE

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C12 **Planned Acres:** 49.2 **Estimated Volume:** 1,237.5 **In Alternatives:** 2, 3, 5, 6, 7
Silvicultural System : See section **Number of Settings:** 8 **Quad:** KTNC4NW **Photo:** 1573-187 **Logging systems:** - RS- HE
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D70C **WAA Number:** 510 **NOI Unit:** 308 **Original LSTA Unit:** 744-308

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 0.0 Spruce 0.0 Mixed Hem/Spr 32.0 **Nonforested** 0.8 **Aspect:** SW
Volume class breakdown: Class 4: 2.8 Class 5: 29.3 Class 6: 0.0 Class 7: 0.0 **Low Productive** 16.4
Visuals: Seen 0.0 Not Seen 49.2 **VQOs:** PR- 0.0 MM- 49.2 M- 0.0 P- 0.0 R- 0.0
Recreation: **Primary ROS Code** SPNM **High VAC** 49.2 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 49.2
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.5 Class 3 Stream: 6.7 **Soils:** 0.0
Mass movement Index: Low 0.0 Medium 48.7 High 0.5 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.6
Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 0.0 3- 0.0 4- 49.2
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 40.8
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit contains some high landslide potential soils on upper slopes (L-15 to O-14) (BMP 13.5). Recommend at least partial log suspension when yarding (BMP 13.9). NRB 8/28/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Multiple Class III streams within this unit require road/landing locations that will allow split yarding.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7)

Fish/Watershed Input

Class II MM1 stream south (TTRA): 120 foot no cut buffer (BMP 12.6,12.6a)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/28/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

Unit is adjacent to an active avalanche tract (L-15 to K-14). Recommend that an avalanche-firm buffer of trees be maintained along the northeast unit boundary to protect regeneration from damage. NRB 8/28/95

Silviculture Input

Highly productive with small areas of high mass movement soils. Planting will be required. (5 acres) CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C12

Mapscale 1:15840 (4 inch to Mile)

Created 8-14-96, //sfiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 300 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setting Line		Updates to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slick Line
SH Shovel Yarding

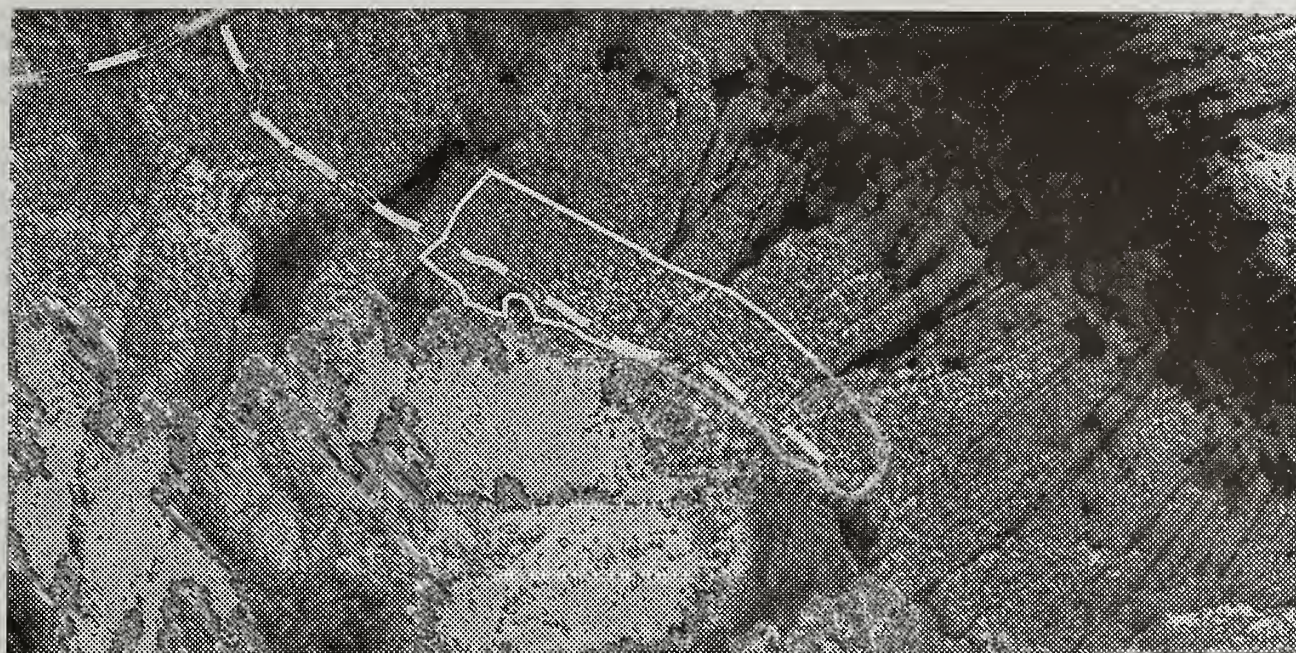
Volc 4 - 3
Volc 5 - 29
Volc 6 - 0
Volc 7 - 16
Total Acres - 49
Potential MBF - 1231
Quarter Quad(s) - XTNC4NW-
VCU Number - 7440
FEIS Unit Number(s) 19 0 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c12



General Information:

Volume Class 4 3
 Volume Class 5 29
 Volume Class 6 0
 Non Volume Class 16
 Total acres 49
 potential MBF 1231
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 19 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C13	Planned Acres: 43.6	Estimated Volume: 383.9	In Alternatives: 2, 3, 5, 6, 7
Silvicultural System: See section	Number of Settings: 3	Quad: KTNC4NW	Photo: 1890-49
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 310	Logging systems: - RS, HE
			Original LSTA Unit: 744-310

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type:	Cedar 0.0	Hemlock 0.0	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: SW
Volume class breakdown:	Class 4: 0.0	Class 5: 0.0	Class 6: 0.0	Class 7: 0.0	Low Productive 43.6	
Visuals:	Seen 0.0	Not Seen 43.6	VQOs:	PR- 0.0	MM- 43.6	M- 0.0
				P- 0.0	R- 0.0	
Recreation:	Primary ROS Code RM	High VAC 43.6	Intermediate VAC 0.0	Low VAC 0.0	Roadless 0.0	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.1	Class 3 Stream: 6.1	Soils: 0.0		
Mass movement Index:	Low 0.0	Medium 41.2	High 2.5	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 2.5
Wetland Information:	Wetland 0.0	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0	2- 0.0	3- 0.0
				4- 43.6		
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 0.0	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 0.0	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

A small area (G-17), about 5 acres, of forested wetland and non-forested muskeg is located in the west-central part of unit (BMP 12.5). This area is suitable for shovel logging (BMP 13.9). NRB 8/28/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Determine eastern boundary with profiles; a slope break with potential blind lead may cause the boundary to be moved downhill.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7) Relocate road through muskeg to avoid populations of Choris bog orchids.

Fish/Watershed Input

Class II MM1 stream southwest (TTRA): 120 foot no cut buffer (BMP 12.6, 12.6a)
Class III HC6 stream central: split yarding and full suspension required (BMP13.19)

Wildlife Input

Maintain distribution of snags by leaving 1-5 acre-sized islands of green trees at a rate of 1 acre of island for every 20 acres of harvest. Leave islands must be compatible with logging systems and safe working conditions.

Recreation / Visuals Input

No Concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/28/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

Unit is located adjacent to avalanche tract (L-15 to J-14). Recommend an avalanche firm buffer of trees be left along the southeast unit boundary to protect regeneration from avalanches. NRB 8/28/95

Silviculture Input

Highly productive with small areas of high mass movement soils. Planting will be required, using Alaska yellow cedar if available. (6 acres) CBG 10/16/95

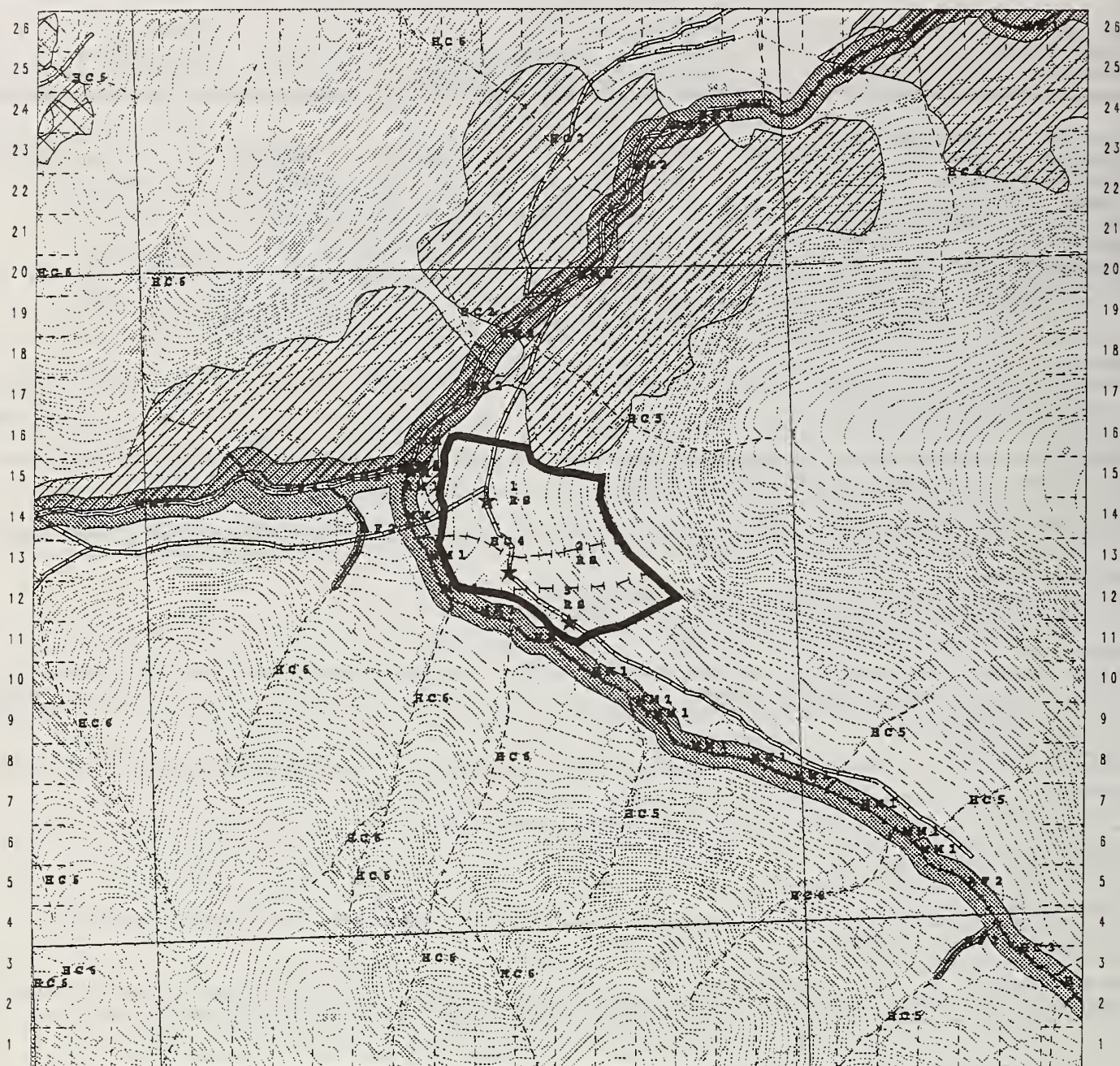
Upper Carroll Study Area Unit Schematic - ROD Unit C13

Mapscale 1:15840 (4 inch to Mile)

Created 8-14-96, //styles/ref/library/gis/upperc5/rodcord/rod2cord



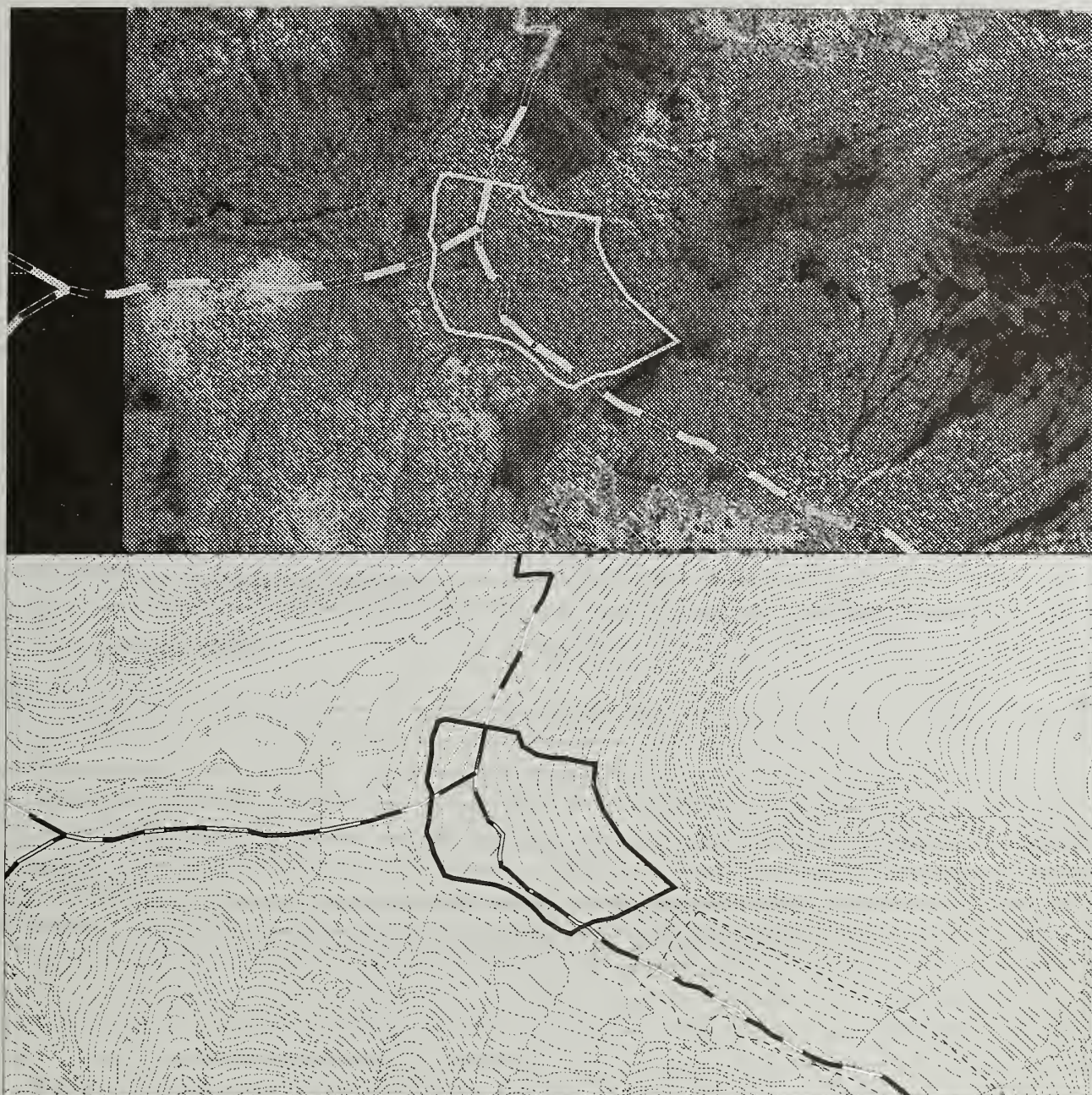
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer	Valc 4 - 0
	Class 2 Stream		Private Land	Valc 5 - 0
	Class 3 Stream		Implementation Buffer	Valc 6 - 0
	Section Line		Anadromous 100 ft. Buffer	Valc 7 - 44
	Planning Roads		Body of Water	Total Acres - 44
	Goit Boundary		Prior Harvest	Potential MBF - 384
	Setting Line		Updates to Wetlands	Quarter Quad(s) - KTNC4NW-
	Contour or Ortho Lines			VCU Number - 7440
				FEIS Unit Number(s) 20 0 0
				* Landing
LOGGING SYSTEMS Abbrev.				
RS Running Skyline				
HE Helicopter				
HL High Lead				
SL Slack Line				
SH Shovel Yarding				
Projection - Stateplane				
				Feet
				0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c13



General Information:

Volume Class 4 0
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 44
 Total acres 44
 potential MBF 384
 VCU Number 7440
 located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 20 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C14 Planned Acres: 7.7 Estimated Volume: 206.4 In Alternatives: 2, 3, 5, 6, 7
 Silvicultural System: See section Number of Settings: 1 Quad: KTNC4NW Photo: 1890-49 Logging systems: - RS- HE
 Management Area: K32 VCU Number: 744 Watershed Code: D70C WAA Number: 510 NOI Unit: 313 Original LSTA Unit: 744-313

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 7.4 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 Aspect: N
 Volume class breakdown: Class 4: 7.4 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 Low Productive 0.3
 Visuals: Seen 0.0 Not Seen 7.7 VQOs: PR- 0.0 MM- 7.7 M- 0.0 P- 0.0 R- 0.0
 Recreation: Primary ROS Code RM High VAC 7.7 Intermediate VAC 0.0 Low VAC 0.0 Roadless 0.0
 Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 1.6 Soils: 0.0
 Mass movement Index: Low 0.0 Medium 7.7 High 0.0 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 1.2
 Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.0 Site Productivity Classes 1- 0.0 2- 0.0 3- 0.0 4- 7.7
 High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 1.6 River Otter- 1.6 Bald Eagle- 1.6 Black Bear- 7.7
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

No concerns. NRB 8/28/95

Timber Input

Planned logging systems design for this unit is Running Skyline. A slope break and potential blind lead may cause the south unit boundary to be move downhill; run profiles to verify logging feasibility. Also, field reconnaissance shows that there is a lack of adequate runout for the proposed landing. Confirm final road and landing locations. Change to Helicopter yarding if landing or blindlead is unfeasible.

Engineering Input

There are no engineering mitigation measures anticipated for this unit.

Fish/Watershed Input

Class III HC6 stream east: 75 foot sideslope buffer (BMP 12.6)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/28/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 8/28/95

Silviculture Input

High productivity. Potential for severe brush competition exists. Plant Sitka spruce. (7 acres) CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C14

Mapscale 1:15840 (4 inch to Mile)

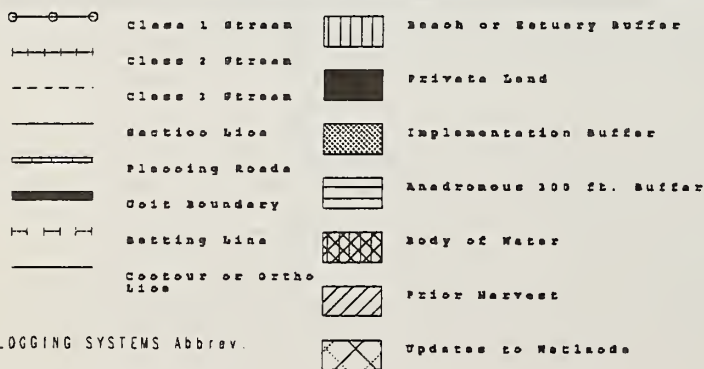
Created 8-14-98, /tstiles/ref/library/gis/upperc5/rodcard/rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Valc 4 - 7
Valc 5 - 0
Valc 6 - 0
Valc 7 - 0
Total Acres - 8
Potential MBF - 206
Quarter Quad(s) - KTNC4NW-
VCU Number - 7440
FEIS Unit Number(s) 21 0 0

* Landing

Projection - Stateplane



Upper Carrol ROD Unit Schematic for unit c14



General Information:

Volume Class 4 7

Volume Class 5 0

Volume Class 6 0

Non Volume Class 0

Total acres 8

potential MBF 206

VCU Number 7440

located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:

21 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C15	Planned Acres: 33.4	Estimated Volume: 1,125.6	In Alternatives: 2, 3, 5, 6, 7
Silvicultural System: See section	Number of Settings: 5	Quad: KTNC4NW	Photo: 1573-188
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 327	Original LSTA Unit: 744-327

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type:	Cedar 0.0	Hemlock 32.3	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: S
Volume class breakdown:	Class 4: 0.0	Class 5: 32.3	Class 6: 0.0	Class 7: 0.0	Low Productive 1.1	
Visuals:	Seen 0.0	Not Seen 33.4	VQOs:	PR- 0.0	MM- 33.4	M- 0.0
Recreation:	Primary ROS Code RM	High VAC 33.4	Intermediate VAC 0.0	Low VAC 0.0	Roadless 0.0	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 6.3	Soils: 2.2		
Mass movement Index:	Low 2.2	Medium 26.7	High 4.6	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 0.0
Wetland Information:	Wetland 0.0	Mix Wetland 0.0	Riparian Soil 2.2	Site Productivity Classes 1- 0.0	2- 0.0	3- 1.7
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 16.2	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 33.4	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

The upper slopes (K-13 to M-15) in this unit have a high potential for landslide activity, MMI=3 (BMP 13.5). Partial log suspension is recommended in yarding to minimize soil disturbance (BMP 13.9). NRB 8/28/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Run profiles on north unit boundary to determine boundary location.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7)

Fish/Watershed Input

Class II MM1 stream south (TTRA): 120 no cut buffer(BMP 12.6, 12.6a)
Class III HC6 stream central: split yarding and full suspension required (BMP 13.16).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No Concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/28/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

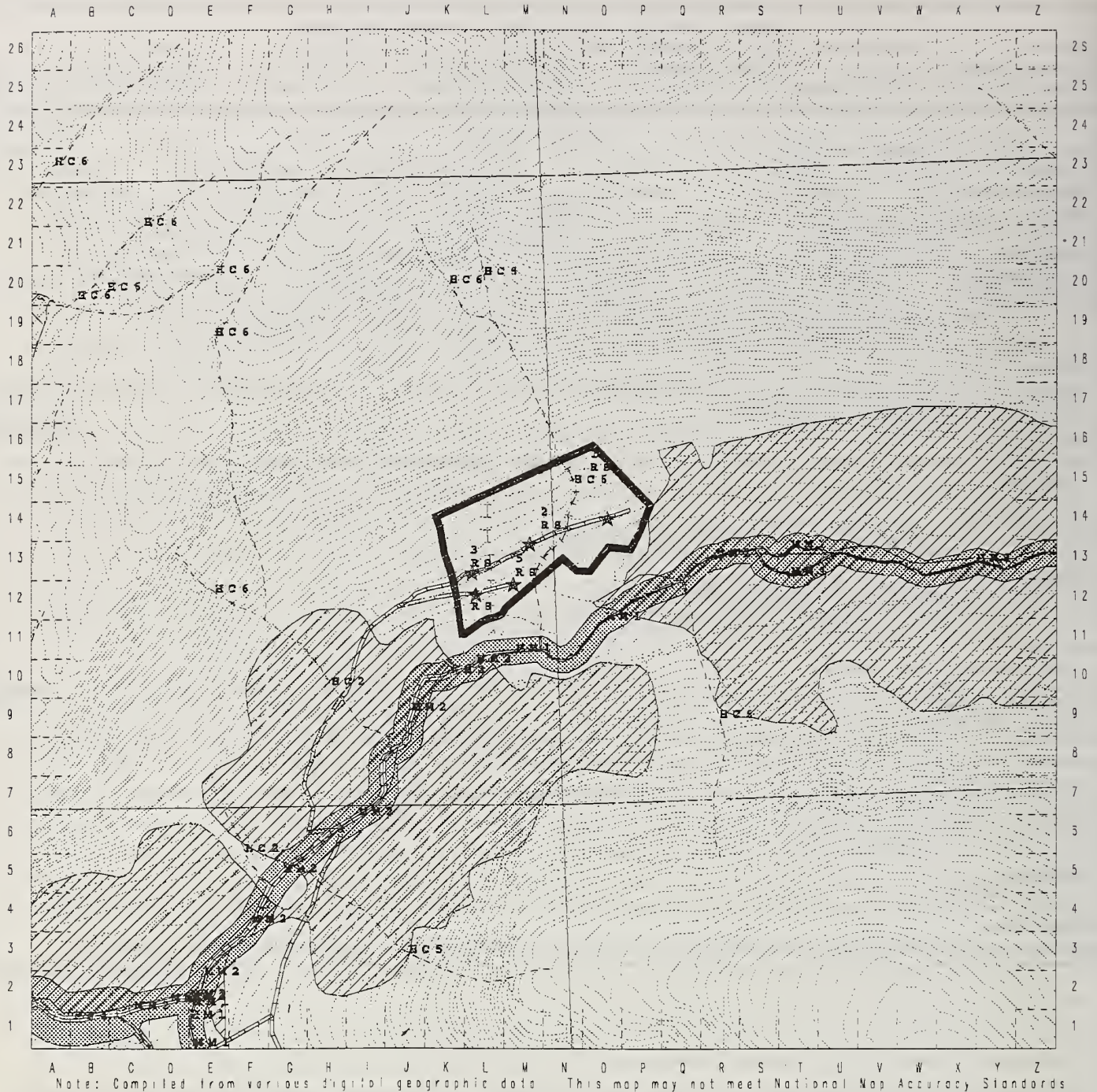
No concerns. NRB 8/28/95

Silviculture Input

High productivity, with small areas of high elevation and high mass movement soils. Plant Alaska yellow cedar if available. (15 acres) CBG 10/15/95

Upper Carroll Study Area Unit Schematic - ROD Unit C15

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96. //styles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards.

- | | | | |
|--|-----------------------|--|---------------------------|
| | Class 1 Stream | | Beach or Estuary Buffer |
| | Class 2 Stream | | Private Land |
| | Class 3 Stream | | Implementation Buffer |
| | Section Line | | Anadromous 100 ft. Buffer |
| | Planning Roads | | Body of Water |
| | Cost Boundary | | Prior Harvest |
| | Setting Line | | Updates to Wetlands |
| | Contour or Ortho Line | | |

LOGGING SYSTEMS Abbrev

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

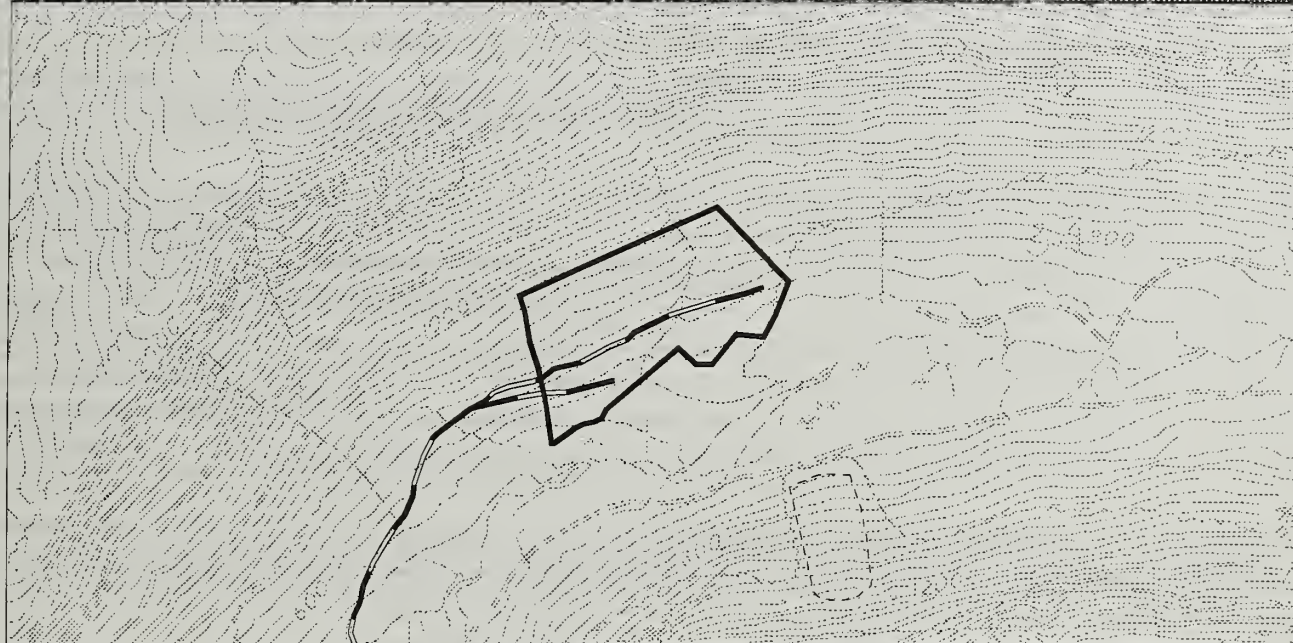
Volc 4 - 0
Volc 5 - 32
Volc 6 - 0
Volc 7 - 1
Total Acres - 33
Potential MBF - 1126
Quarter Quad(s) - KTNC4NW-
VCU Number - 7440
FEIS Unit Number(s) 22 0 0

★ Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c15



General Information:

Volume Class 4 0
 Volume Class 5 32
 Volume Class 6 0
 Non Volume Class 1
 Total acres 33
 potential MBF 1126
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 22 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C16 Planned Acres: 23.0 Estimated Volume: 771.7 In Alternatives: 2, 3, 0, 0, 7
 Silvicultural System: See section Number of Settings: 3 Quad: KTNC5NE Photo: 1890-48 Logging systems: - RS- HE
 Management Area: K32 VCU Number: 744 Watershed Code: D70C WAA Number: 510 NOI Unit: 371 Original LSTA Unit: 744-371

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 14.8 Spruce 0.0 Mixed Hem/Spr 7.3 Nonforested 0.0 **Aspect:** W
Volume class breakdown: Class 4: 0.0 Class 5: 22.1 Class 6: 0.0 Class 7: 0.0 **Low Productive** 0.9
Visuals: Seen 23.0 Not Seen 0.0 **VQOs:** PR- 0.0 MM- 0.0 M- 23.0 P- 0.0 R- 0.0
Recreation: Primary ROS Code RM High VAC 0.0 Intermediate VAC 23.0 Low VAC 0.0 **Roadless** 0.0
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 5.4 **Soils:** 0.0
Mass movement Index: Low 9.5 Medium 0.0 High 13.5 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.7 2- 0.0 3- 1.6 4- 20.7
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 22.0
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Some of ground adjacent to the unit includes extremely steep, shallow, potentially unstable soils, MMI=4, that are physically unsuited for commercial forest production (BMP 13.5). The planned unit consists of high landslide potential soils, MMI=3 (BMP 13.5). Recommend partial log suspension when yarded (BMP 13.9). Also recommend that Soil Scientist assist in unit layout. NRB 8/30/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Southern portion of planned unit appears to be a blindlead. Verify feasibility and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7)

Fish/Watershed Input

Class III HC5 stream south: sideslope buffer or exclusion from unit (BMP 12.6, 12.6a).
 Class III HC4 stream central: split yarding or full suspension required (BMP 13.16)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

Unit may be seen from Carroll estuary. Identified VQO is modification. WEA 9/30/95

Lands Input

No concerns. NRB 8/30/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

Very high landslide potential, MMI=4. See Soils Input. NRB 8/30/95

Silviculture Input

Highly productive with areas of high elevation and high mass movement soils. Regeneration of much of unit will be difficult due to steep, shallow soils. Recommend application of shelterwood system leaving all trees 13" DBH and under standing. If clearcut, unit will require planting. CBG 10/16/95

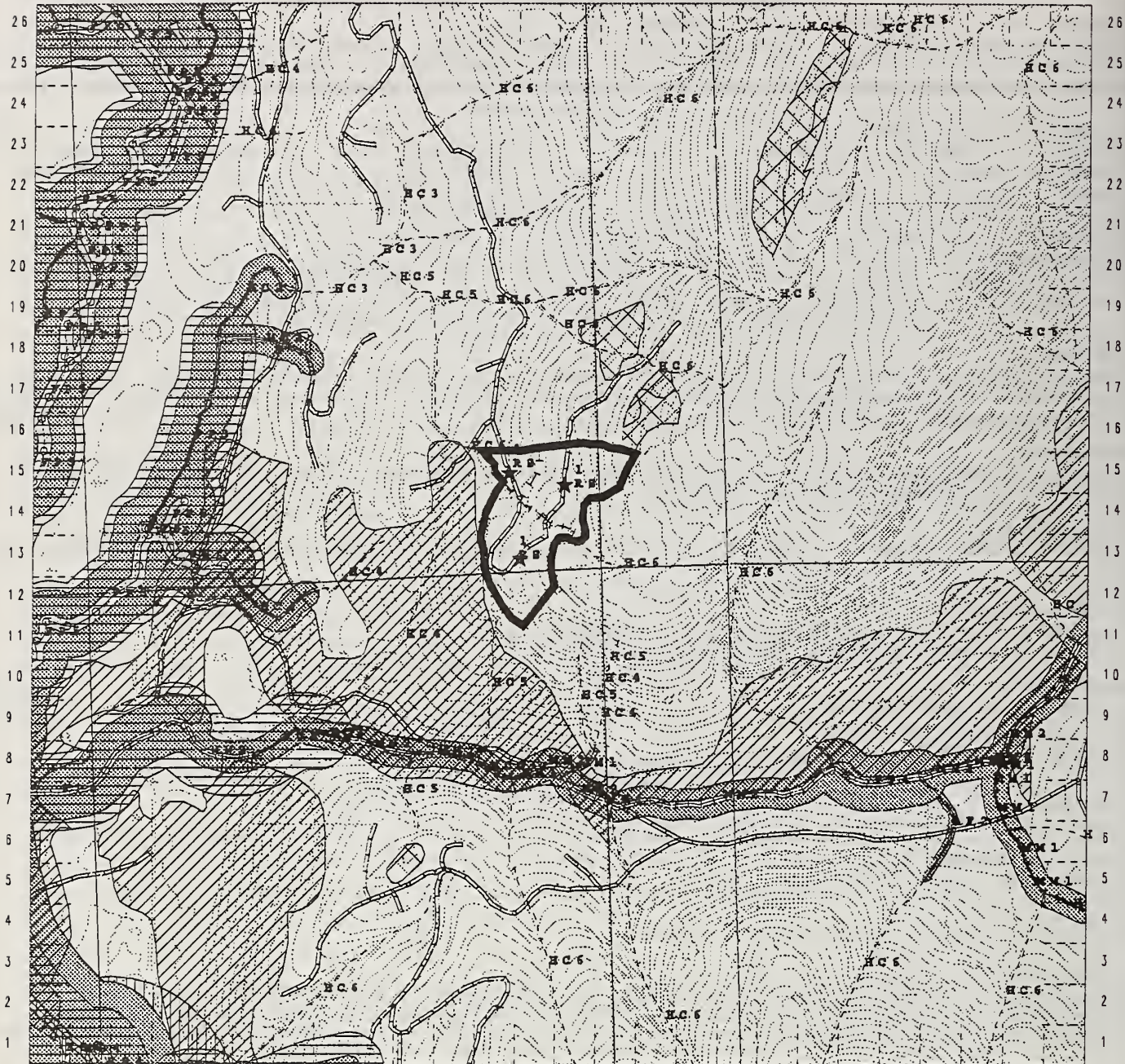
Upper Carroll Study Area Unit Schematic - ROD Unit C16

Mapscale 1:15840 (4 inch to Mile)

Created 8-14-98, /fstyles/ref/library/gis/upperc5/rodcard/rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 300 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Settling Line		Updates to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

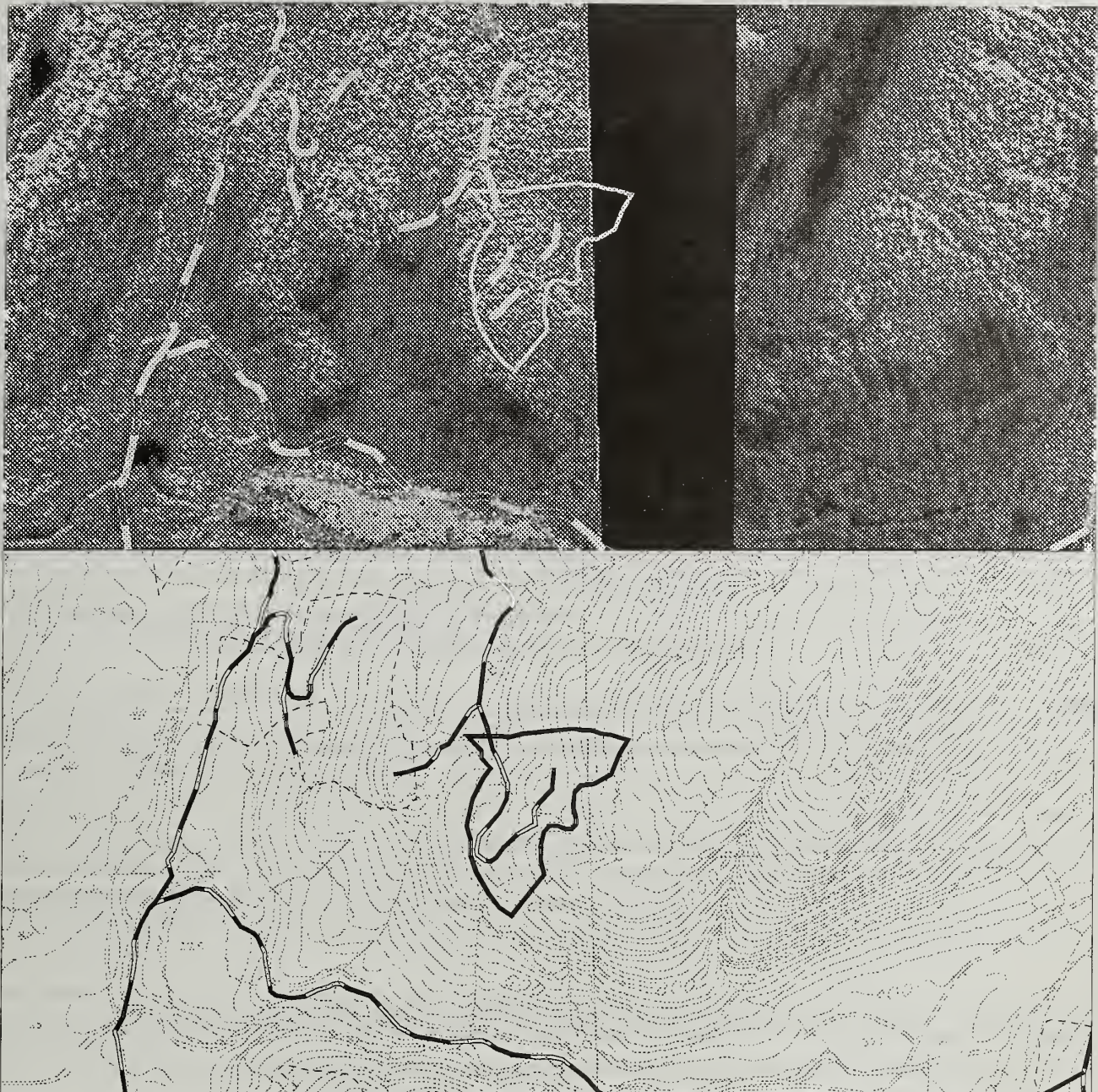
Volc 4 - 0
Volc 5 - 22
Volc 6 - 0
Volc 7 - 1
Total Acres - 23
Potential MBF - 772
Quarter Quad(s) - KTNC+NW-KTNC5NC
VCU Number - 7440
FEIS Unit Number(s) 51 0 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c16



General Information:

Volume Class 4 0
 Volume Class 5 22
 Volume Class 6 0
 Non Volume Class 1
 Total acres 23
 potential MBF 772
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 51 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW KTNC5NE

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C17	Planned Acres: 38.4	Estimated Volume: 1,322.3	In Alternatives: 2, 3, 5, 6, 7, 0
Silvicultural System : See section	Number of Settings: 5	Quad: KTNC5NE	Photo: 1573-162
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 378, 960	Original LSTA Unit: 744-378

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0	Hemlock 0.0	Spruce 0.0	Mixed Hem/Spr 38.4	Nonforested 0.0	Aspect: W, NW
Volume class breakdown:	Class 4: 0.0	Class 5: 38.4	Class 6: 0.0	Class 7: 0.0	Low Productive 0.0
Visuals: Seen 31.7	Not Seen 6.7	VQOs: PR- 0.0	MM- 6.7	M- 31.7	P- 0.0 R- 0.0
Recreation: Primary ROS Code RM	High VAC 7.1	Intermediate VAC 2.5	Low VAC 0.0	Roadless 0.0	
Riparian MA:	Class 1 Stream: 0.1	Class 2 Stream: 0.2	Class 3 Stream: 0.0	Soils: 0.0	
Mass movement Index:	Low 12.1	Medium 9.9	High 16.4	Very High 0.0	Unknown 0.0
Wetland Information:	Wetland 0.1	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0	2- 0.0 3- 5.8 4- 32.7
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 30.2	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 38.4

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Southern half (M-12 to M-14) of harvest unit includes high landslide potential soils (BMP 13.5). Recommend at least partial log suspension when yarding to minimize soil surface disturbance (BMP 13.9). Area also includes rock cliffs that may limit yarding capability and cause blind leads. No concerns in the rest of the unit. NRB 8/31/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7) Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7) Steelhead/Coho/Pink/Chum timing (July 18 - August 7) may apply for all road construction and/or drainage installations. (BMP 14.6).

Fish/Watershed Input

Class II MC2 stream north (TTRA): 100 foot no cut buffer (BMP 12.6 and 12.6a)
Class I FP3 stream west (TTRA): 200 foot no cut buffer (BMP 12.6 and 12.6a)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

Portions of unit may be seen from Carroll Inlet. Identified VQO is modification and maximum modification. Unit is located low on the the slope and stream buffers will help to screen unit.

Lands Input

No concerns. NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 8/31/95

Silviculture Input

Highly productive with small areas of Hydric soils that will need to be planted. (6 acres) Setting 1 contains a partial cut stream buffer. Prescription will need to identify tree marking guides. Other areas include moderate productivity with areas of high mass movement potential soil. Monitor need for planting CBG 10/16/95

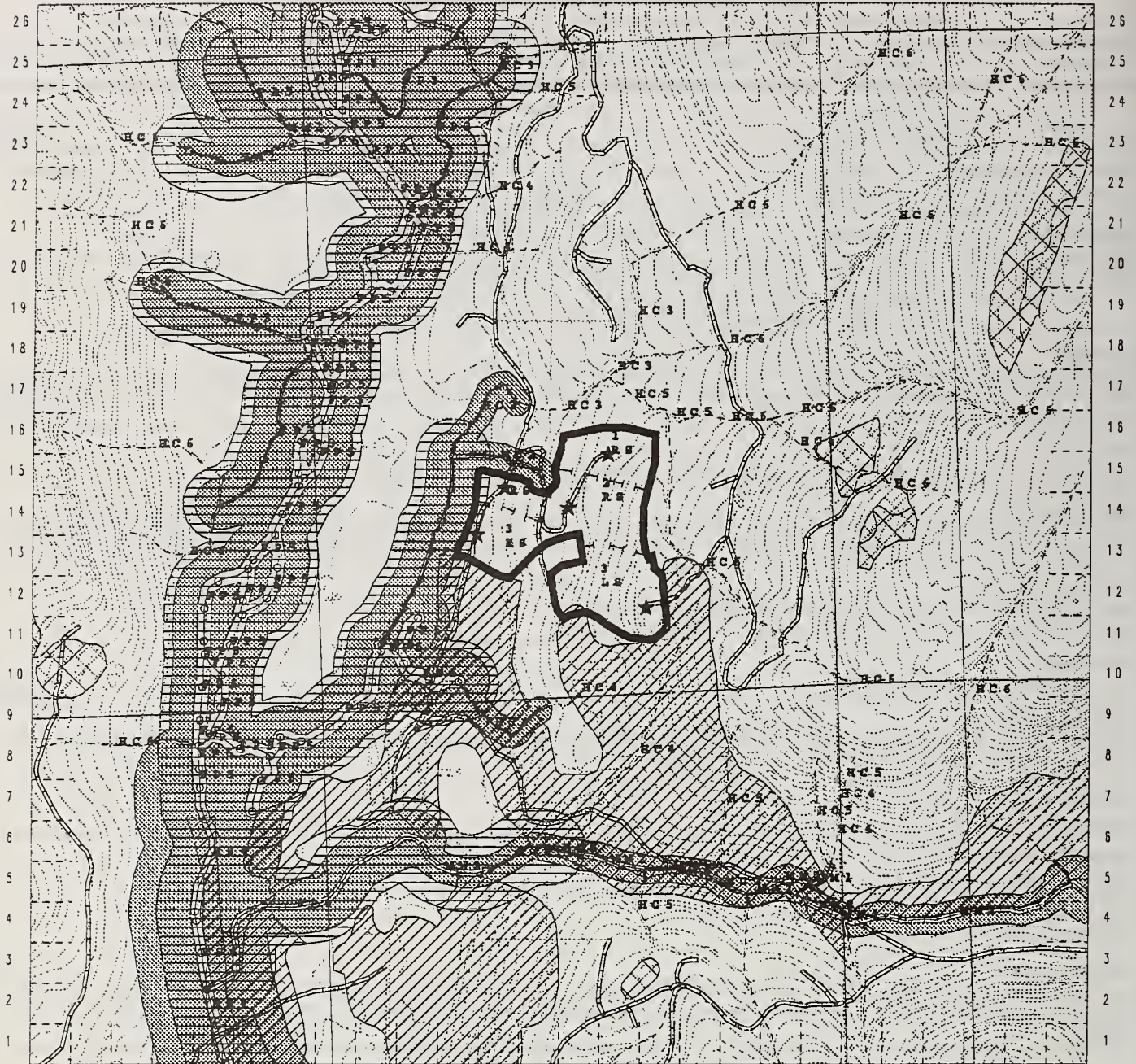
Upper Carroll Study Area Unit Schematic - ROD Unit C17

Mapscale 1:15840 (4 inch to Mile)

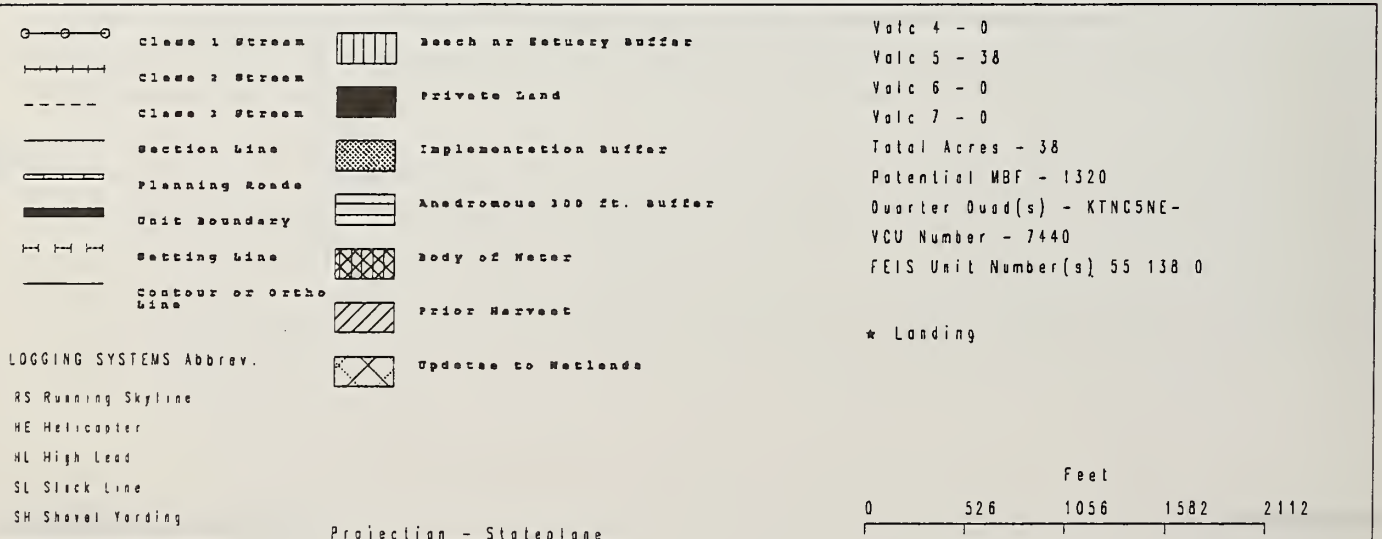
Created 8-14-96, //sfiles/ref/library/gis/upperc5/rodcard/rod2card



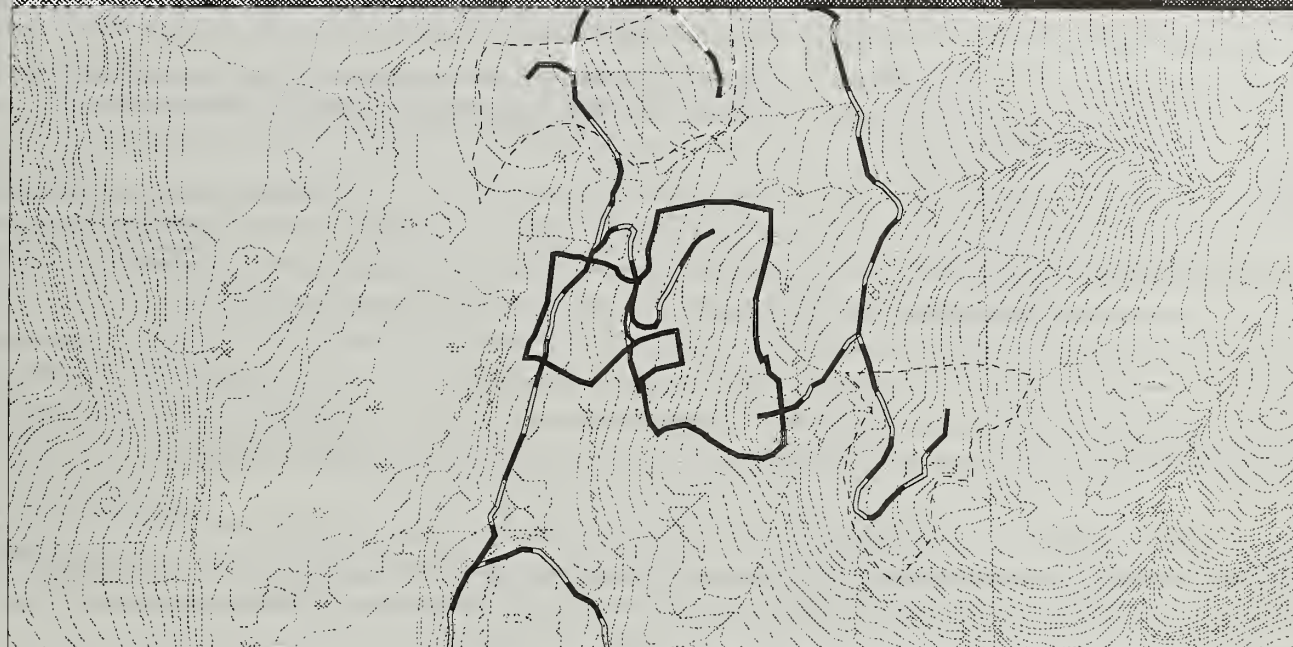
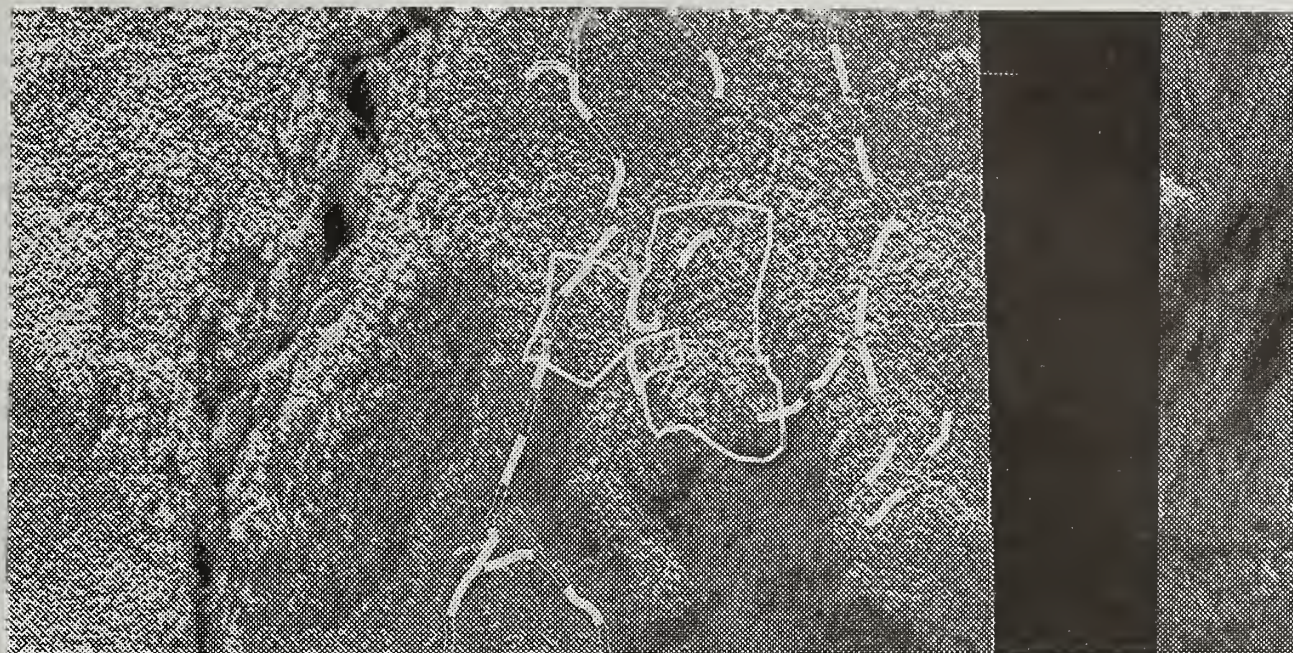
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c17



General Information:

Volume Class 4 0
 Volume Class 5 38
 Volume Class 6 0
 Non Volume Class 0
 Total acres 38
 potential MBF 1320
 VCU Number 7440
 located on USGS Quarter Quad(s) KTNC5NE

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 55 138 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C18	Planned Acres: 91.9	Estimated Volume: 3,172.9	In Alternatives: 2, 3, 5, 6, 7
Silvicultural System: See section	Number of Settings: 10	Quad: KTNC5NE	Photo: 1890-4
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 1007	Original LSTA Unit: 744-381

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0	Hemlock 59.5	Spruce 0.0	Mixed Hem/Spr 32.3	Nonforested 0.0	Aspect: W
Volume class breakdown: Class 4: 0.0	Class 5: 91.9	Class 6: 0.0	Class 7: 0.0	Class 8: 0.0	Low Productive 0.0
Visuals: Seen 72.1	Not Seen 19.8	VQOs: PR- 0.0	MM- 19.8	M- 25.9	P- 0.0 R- 0.0
Recreation: Primary ROS Code SPNM	High VAC 22.0	Intermediate VAC 69.8	Low VAC 0.0	Roadless 84.1	
Riparian MA: Class 1 Stream: 0.3	Class 2 Stream: 0.0	Class 3 Stream: 11.9	Soils: 1.3		
Mass movement Index: Low 56.0	Medium 12.8	High 23.1	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 0.0
Wetland Information: Wetland 12.8	Mix Wetland 0.0	Riparian Soil 0.3	Site Productivity Classes 1- 0.0	2- 0.0	3- 12.8 4- 79.1
High Value Habitat: Sitka Black-Tail Deer- 0.0	Marten- 80.3	River Otter- 6.1	Bald Eagle- 0.3	Black Bear- 86.8	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

The south part of this unit contains forested wetlands (BMP 12.5). Recommend at least partial log suspension be achieved in yarding (BMP 13.9) to minimize wetland disturbance. Recommend overlay road construction with adequate cross drains where feasible on these wetlands (BMPs 14.2, 14.3) NRB 9/18/95

Timber Input

Planned logging systems design for this unit is Running Skyline, Shovel, Live Skyline, and Helicopter.. Confirm final road and landing locations.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7) Steelhead/Coho/Pink/Chum timing (July 18 - August 7) may apply for all road construction and/or drainage installations.

Fish/Watershed Input

Class I FP5 stream southwest (TTRA): 300 foot buffer (BMP 12.6,12.6a)
 Class III HC5 streams northwest: split yarding or full suspension required (BMP13.16,13.9)
 Class III HC6 stream southeast: sideslope buffer required (BMP 12.6).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

Portion of unit is visible from Carroll Inlet. Identified visual quality objective is modification. Adjacent uncut standing timber will help to screen this unit. WEA 9/30/95

Lands Input

No concerns. NRB 9/18/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 9/18/95

Silviculture Input

This unit has moderate volume, with small areas of Hydric soils that will need to be planted. (13 acres) Monitor regeneration on hydric soils. CBG 10/16/95

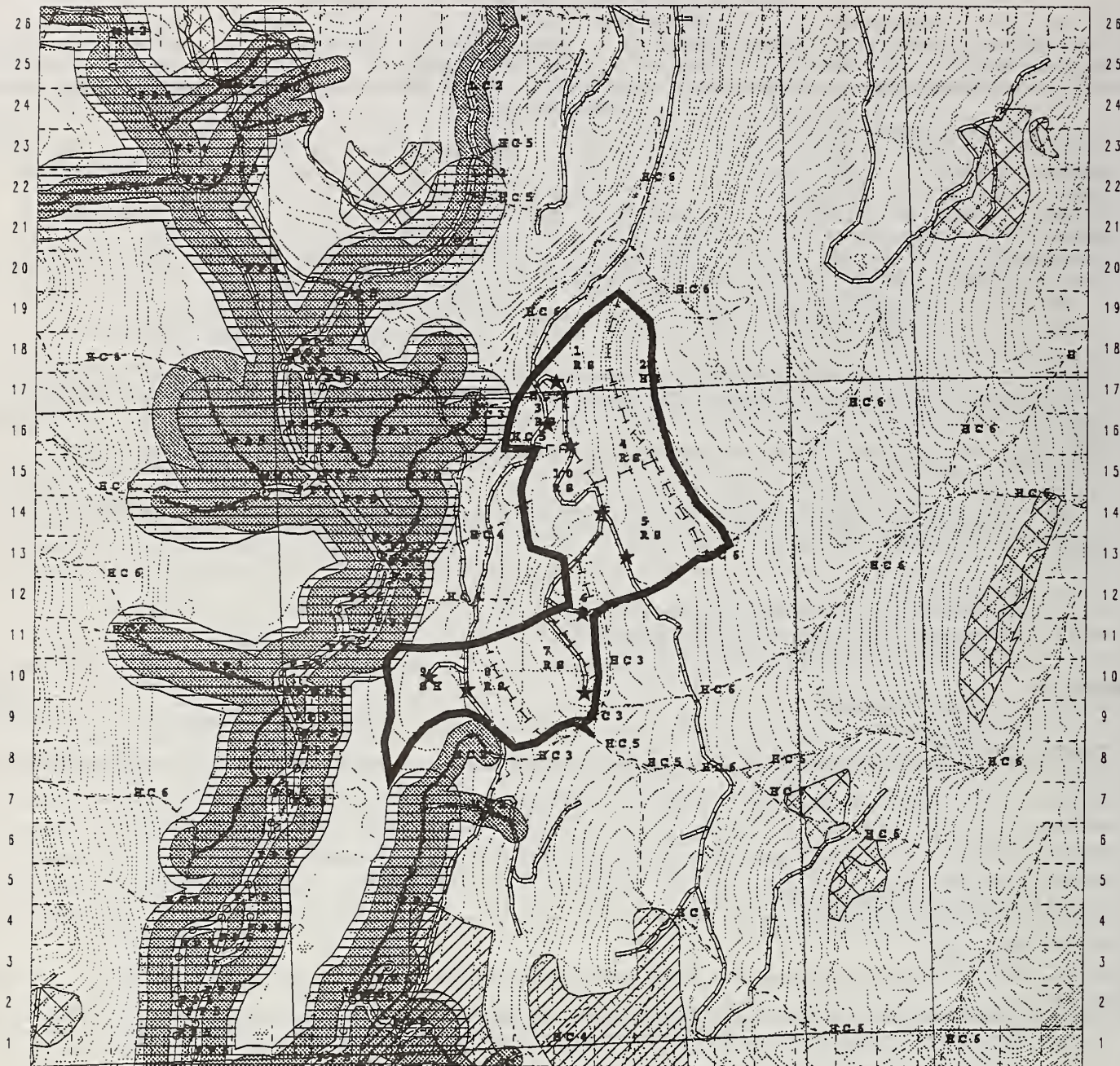
Upper Carroll Study Area Unit Schematic - ROD Unit C18

Mapscale 1:15840 (4 inch to Mile)

Created 8-14-98, //sfiles/ref/library/gis/upperc5/rodcard/rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

- | | | | |
|--|-----------------------|--|-------------------------|
| | Class 1 Stream | | Beach or Estuary Buffer |
| | Class 2 Stream | | Private Land |
| | Class 3 Stream | | Implementation Buffer |
| | Section Line | | Roadway 100 ft. Buffer |
| | Planning Roads | | Body of Water |
| | Gait Boundary | | Prior Harvest |
| | Settling Line | | Updated to Wetlands |
| | Contour or Ortho Line | | |

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Load
SL Stockpile
SH Shovel Loading

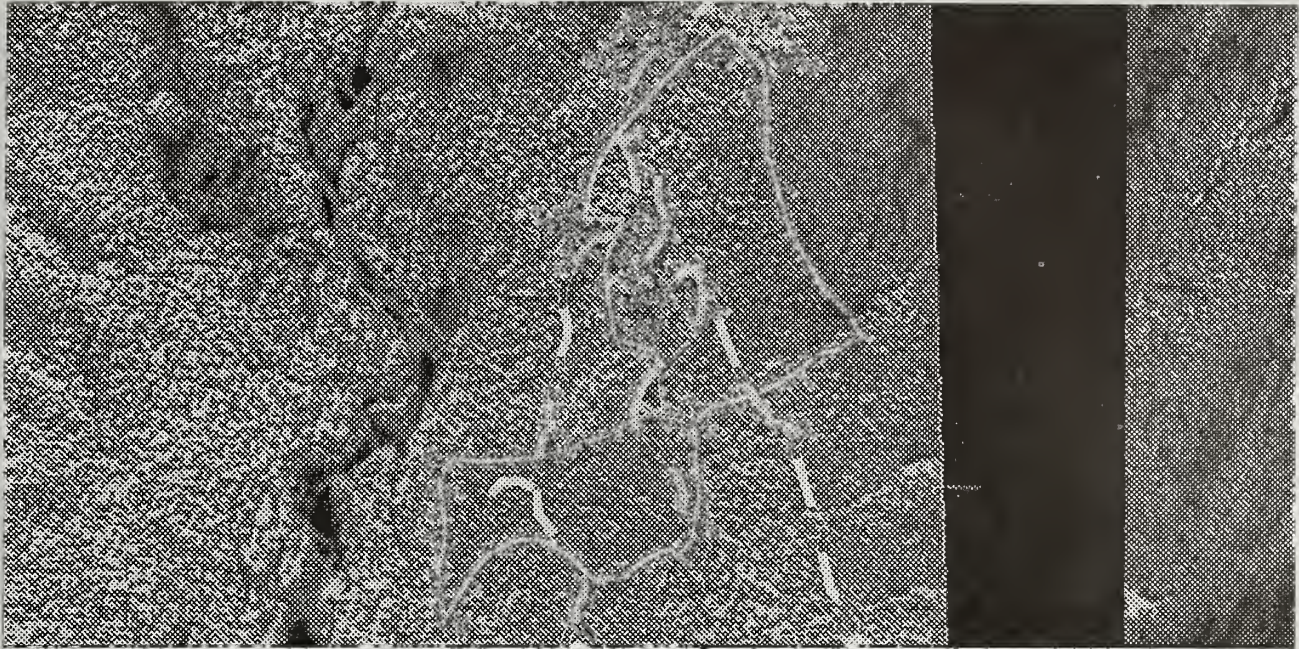
Valc 4 - 0
Valc 5 - 92
Valc 6 - 0
Valc 7 - 0
Total Acres - 92
Potential MBF - 3173
Quarter Quad(s) - KTNC5NE-
VCU Number - 7440
FEIS Unit Number(s) 8 0 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c18



General Information:

Volume Class 4 0
Volume Class 5 92
Volume Class 6 0
Non Volume Class 0
Total acres 92
potential MBF 3173
VCU Number 7440
located on USGS Quarter Quad(s) KTNC5NE

Note: Map compiled from various digital data.
This map map not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
In the FEIS Appendix for detailed unit information:
8 0 0

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C19 **Planned Acres:** 86.8 **Estimated Volume:** 2,524.6 **In Alternatives:** 2, 3, 5, 6, 0
Silvicultural System : See section **Number of Settings:** 13 **Quad:** KTNC5NE **Photo:** 1890-5 **Logging systems:** - RS, LS, SH
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D70C **WAA Number:** 510 **NOI Unit:** 382, 384, 385 **Original LSTA Unit:** 744-382

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 43.7 Spruce 0.0 Mixed Hem/Spr 36.6 Nonforested 0.0 **Aspect:** SE,W
Volume class breakdown: Class 4: 43.7 Class 5: 36.6 Class 6: 0.0 Class 7: 0.0 **Low Productive** 6.4
Visuals: Seen 12.5 Not Seen 74.3 **VQOs:** PR- 0.0 MM- 74.3 M- 0.0 P- 0.0 R- 0.0
Recreation: Primary ROS Code SPNM **High VAC** 30.4 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 30.4
Riparian MA: Class 1 Stream: 0.1 Class 2 Stream: 0.0 Class 3 Stream: 2.2 **Soils:** 0.0
Mass movement Index: Low 16.2 Medium 61.8 High 8.8 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 1.7 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 9.6 3- 11.0 4- 66.2
High Value Habitat: Sitka Black-Tail Deer- 0.9 Marten- 28.2 River Otter- 3.2 Bald Eagle- 2.4 Black Bear- 29.4
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

High productivity yet scattered pockets of Alaska yellow cedar decline and landslide prone soils exist. High elevation areas will require planting. (3 acres). Past evidence of windthrow indicates need for windfirm boundary location. NRB 8/31/95

Timber Input

Planned logging systems design for this unit is Running Skyline, Shovel, and Live Skyline. Confirm final road and landing locations. Setting #5 is primarily within a selective harvest buffer. ITM setting #5 and shovel yard or adjust unit boundary to exclude. Modify Western unit boundary if location is different than ridge top. Southwestern portion of planned unit make a blindlead.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7). Steelhead/Coho/Pink/Chum timing (July 18 - August 7) may apply for all road construction and/or drainage installations. Relocate road to this unit to avoid small population of Choris bog orchids.

Fish/Watershed Input

Class I MM1/MC2 stream south (TTRA): 120 foot buffer or slopebreak buffer which ever is greater (BMP 12.6, 12.6a).
 Class I FP3 stream south (TTRA): 260 foot buffer (BMP 12.6 and 12.6a)
 Class II LC2 stream west (TTRA): sideslope plus 100 foot extended buffer (BMP 12.6 and 12.6a)
 Class III HC6 stream north: sideslope buffer(BMP 12.6, 12.6a).
 Class III HC5 streams west-central : split yarding or full suspension required (BMP 13.9)
 Class III HC6 stream southeast: sideslope buffer (BMP 12.6 and 12.6a)
 Class III HC5 stream south: 75 foot sideslope buffer or split yarding or full suspension required
 Class III HC6 stream north: 75 foot sideslope buffer or split yarding or full suspension required

Wildlife Input

Relocate road to this unit to avoid small population of Choris bog orchids

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

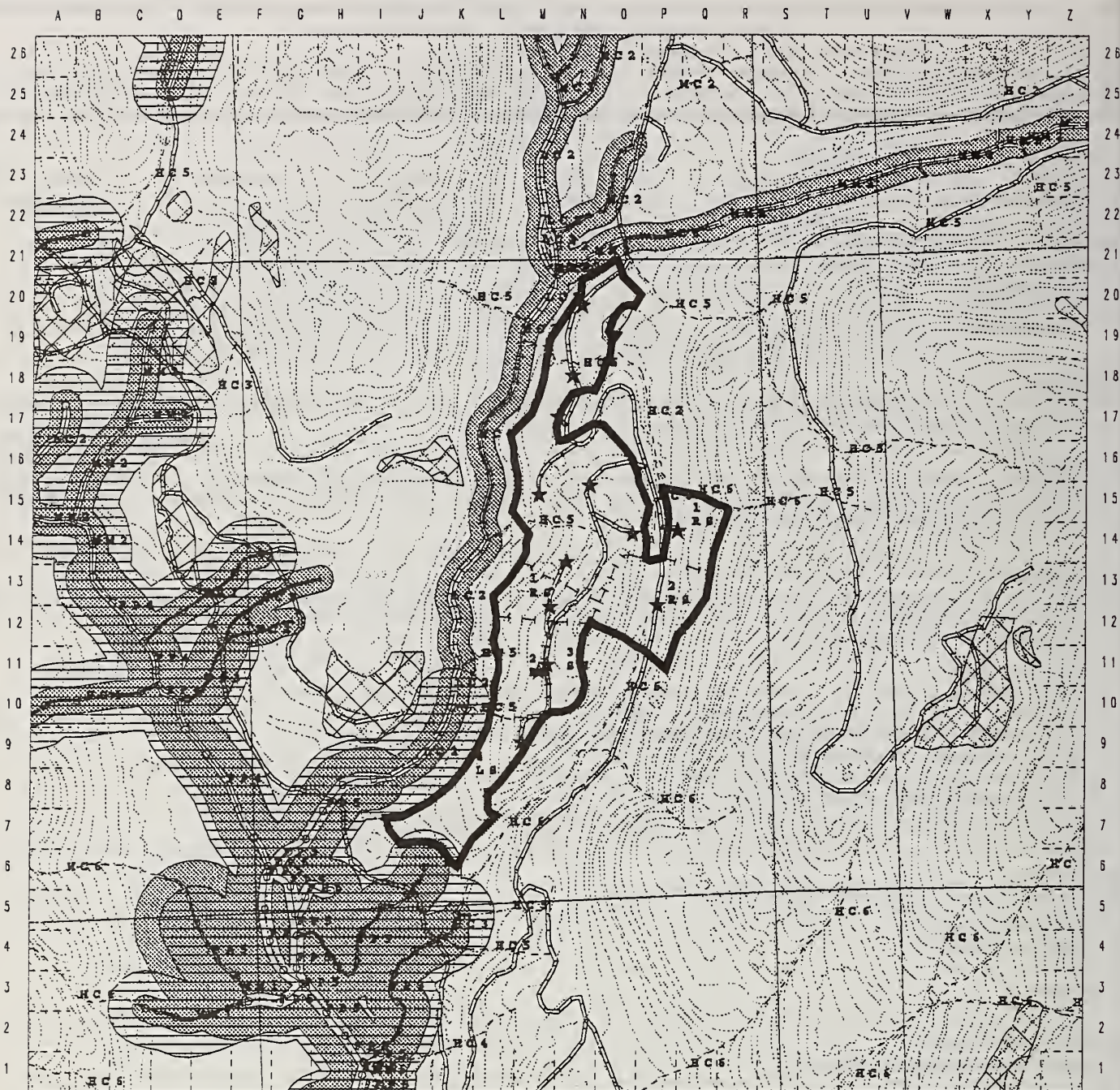
No concerns. 8/31/95

Silviculture Input

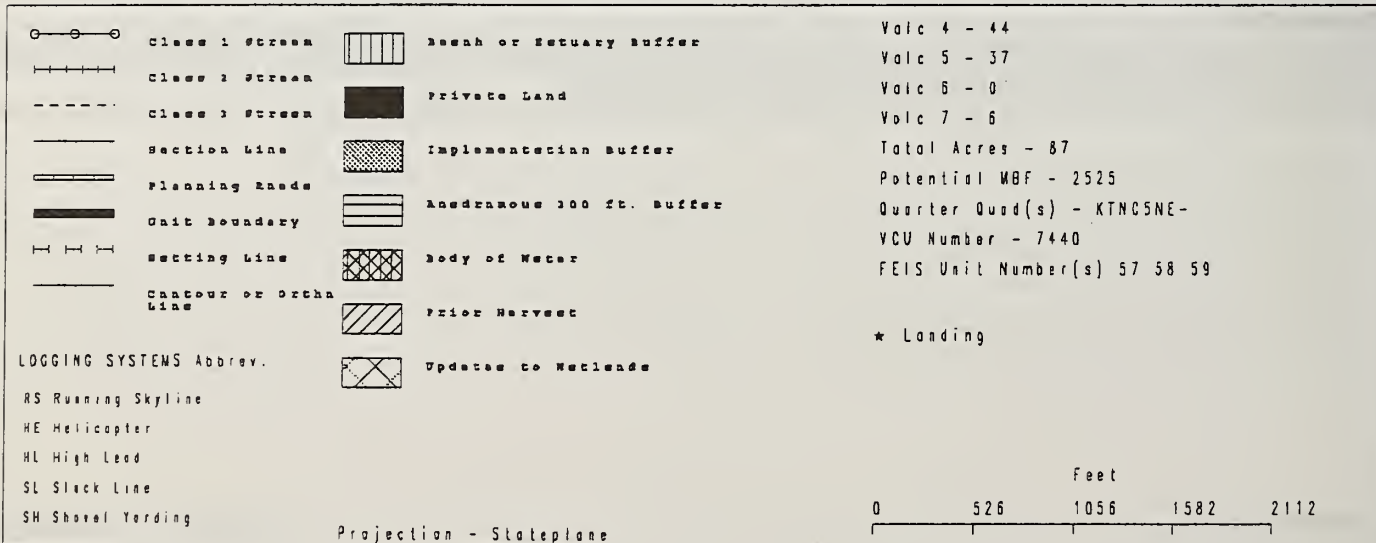
Moderate productivity with good natural regeneration and areas of landslide potential. Plant 3 acres. Monitor need for artificial regeneration on unstable soils. Small pockets of hemlock dwarf mistletoe and Alaska yellow cedar decline should be included within harvest unit. Monitor for re-occurrence following harvest. Prescription should address partial cut stream buffer. Moderate productivity. CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C19

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-95, //sfiles/rel/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c19



General Information:

Volume Class 4 44
Volume Class 5 37
Volume Class 6 0
Non Volume Class 6
Total acres 87
potential MBF 2525
VCU Number 7440
located on USGS Quarter Quad(s) KTNC5NE

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
57 58 59

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C20 **Planned Acres:** 4.2 **Estimated Volume:** 54.2 **In Alternatives:** 2, 3, 5, 6, 0
Silvicultural System : See section **Number of Settings:** 1 **Quad:** KTNC5NE **Photo:** 1573-160 **Logging systems:** - LS
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D70C **WAA Number:** 510 **NOI Unit:** 424 **Original LSTA Unit:** 744-424

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 0.9 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 **Aspect:** W
Volume class breakdown: Class 4: 0.9 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 **Low Productive** 3.3
Visuals: Seen 0.0 Not Seen 4.2 **VQOs:** PR- 0.0 MM- 4.2 M- 0.0 P- 0.0 R- 0.0
Recreation: **Primary ROS Code** P **High VAC** 4.2 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 4.2
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 **Soils:** 0.0
Mass movement Index: Low 3.1 Medium 1.1 High 0.0 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 3.1 3- 1.1 4- 0.0
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 4.2

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

No concerns. NRB 8/31/95

Timber Input

Planned logging systems design for this unit is Live Skyline. Confirm final road and landing locations.

Engineering Input

There are no engineering mitigation measures anticipated for this unit.

Fish/Watershed Input

Class II HC3 stream south (TTRA): 100 foot no cut buffer (BMP 12.6 and 12.6a)
 Class II MC2 stream west (TTRA): 100 foot no cut buffer (BMP 12.6 and 12.6a)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns, NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. 8/31/95

Silviculture Input

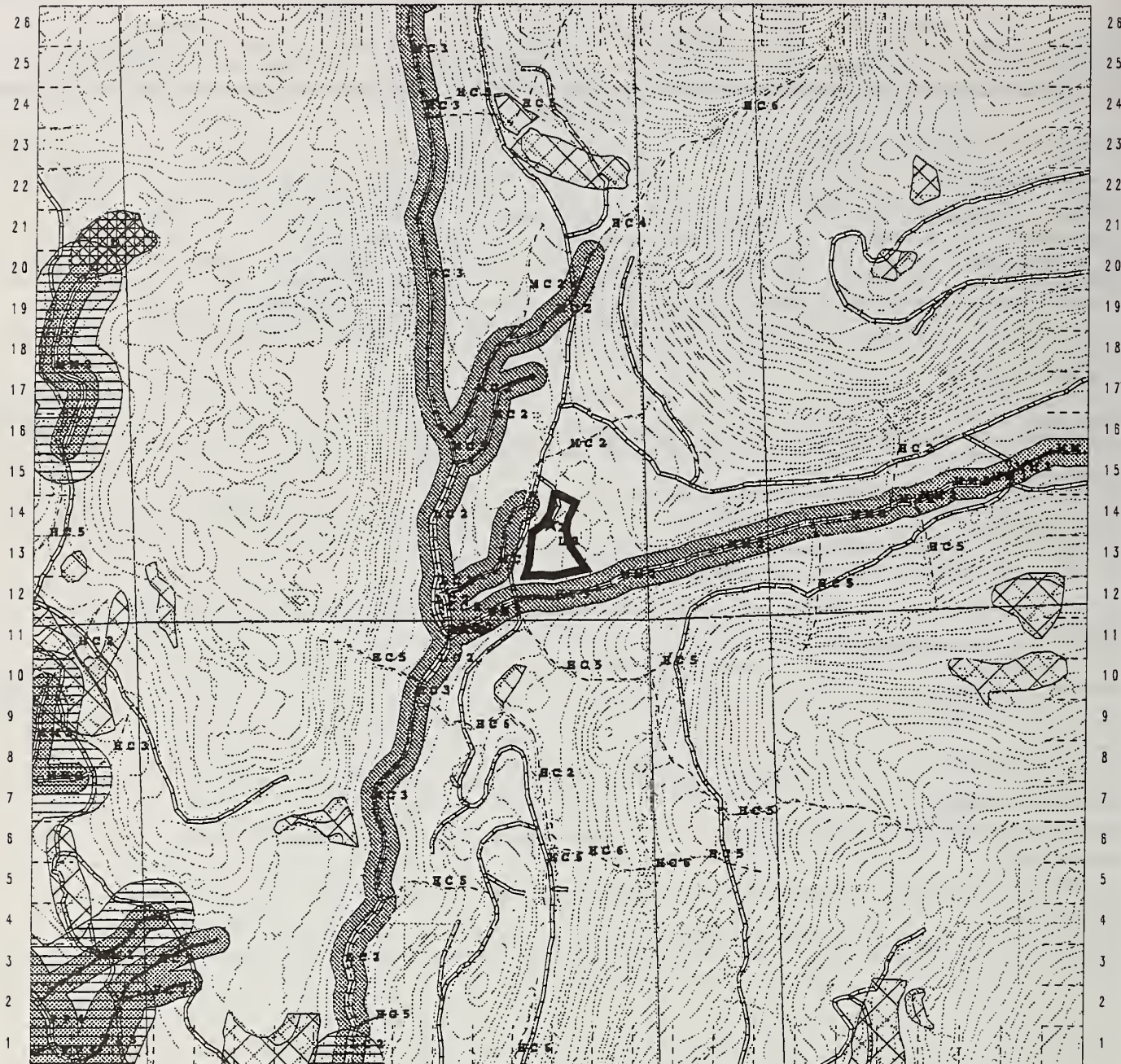
Low productivity. Monitor regeneration to determine if planting will be necessary. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C20

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, /sfiles/ref/library/gis/upperc5/rodcard/rod2card



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

Class 1 Stream Class 2 Stream Class 3 Stream Section Line Planning Roads Vot Boundary Settling Line Contour or Ortho Line	Beach or Estuary Buffer Private Land Implementation Buffer Anadromous 300 ft. Buffer Body of Water Prior Harvest Updates to Wetlands	Volc 4 - 1 Volc 5 - 0 Volc 6 - 0 Volc 7 - 3 Total Acres - 4 Potential WBF - 54 Quarter Quad(s) - KTNC5NE- VCU Number - 7440 FEIS Unit Number(s) 68 0 0 * Landing
--	--	---

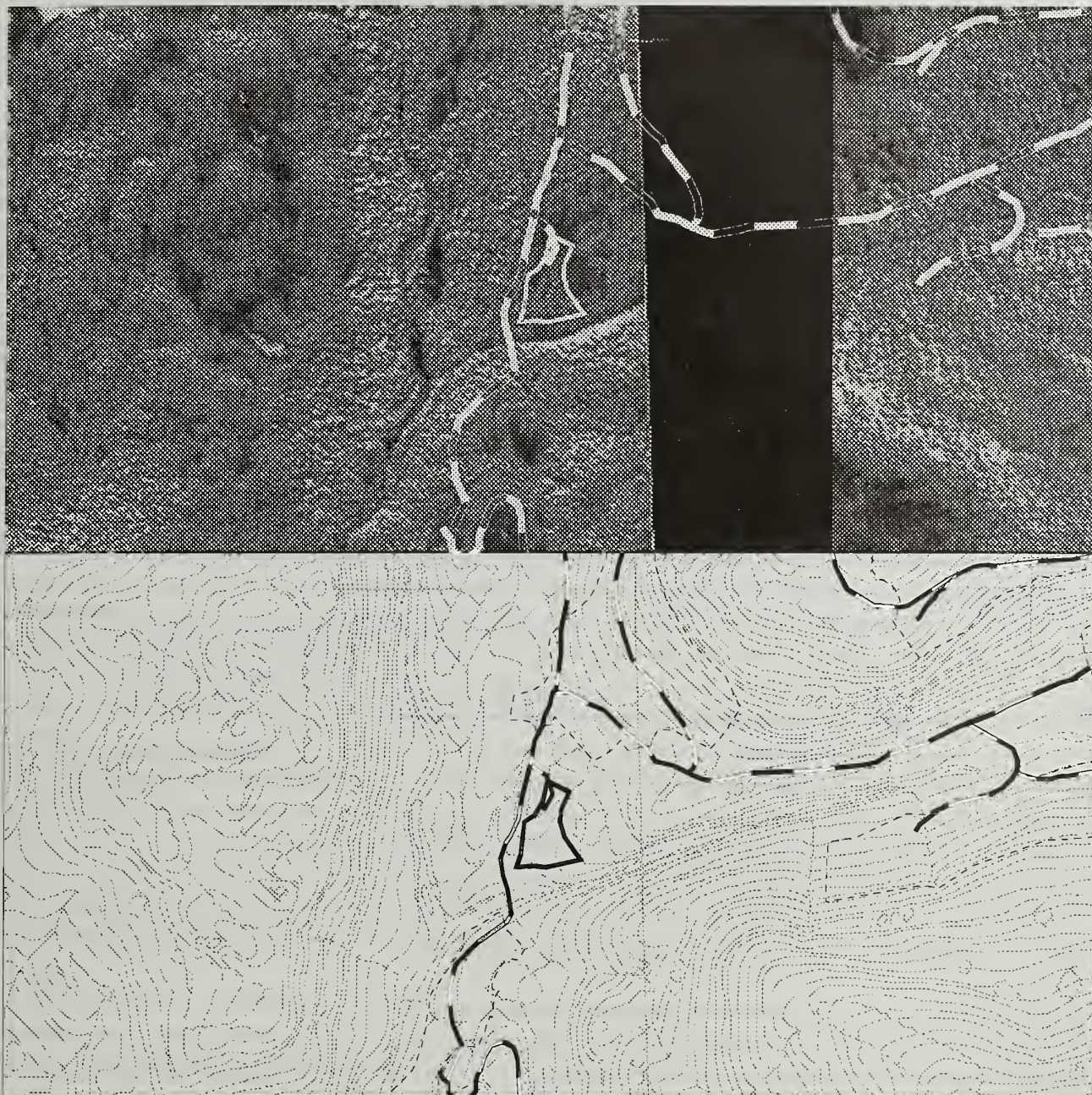
LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c20



General Information:

Volume Class 4	1
Volume Class 5	0
Volume Class 6	0
Non Volume Class	3
Total acres	4
potential MBF	54
VCU Number	7440

located on USGS Quarter Quad(s) KTNC5NE

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:

68 0 0

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C21	Planned Acres: 36.3	Estimated Volume: 1,100.2	In Alternatives: 2, 3, 5, 6, 0
Silvicultural System: See section	Number of Settings: 5	Quad: KTNC4NW	Photo: 1890-47
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 1008	Original LSTA Unit: 744-389

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type:	Cedar 0.0	Hemlock 36.3	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: N
Volume class breakdown:	Class 4: 21.6	Class 5: 14.6	Class 6: 0.0	Class 7: 0.0	Low Productive 0.0	
Visuals:	Seen 0.0	Not Seen 36.3	VQOs:	PR- 0.0	MM- 36.3	M- 0.0
Recreation:	Primary ROS Code P	High VAC 36.3	Intermediate VAC 0.0	Low VAC 0.0	Roadless 36.3	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 3.8	Soils: 0.0		
Mass movement Index:	Low 0.0	Medium 9.4	High 26.9	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 0.1
Wetland Information:	Wetland 0.0	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0	2- 0.0	3- 31.2
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 10.6	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 35.6	4- 5.1

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Lower part of the unit consists of high landslide potential soils, MMI=3 (BMP 13.5). Upper part of unit is mainly forested wetlands (BMP 12.5). Recommend at least partial log suspension be achieved when yarding these areas (BMP 13.9). Road locations should avoid wetlands, if possible (BMP 14.3). Road construction on high landslide potential soils may require full bench design (BMP 14.7). NRB 9/21/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Recommend placing unit boundary to first major slope break @ H12 to R13. Confirm final road and landing locations.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7)

Fish/Watershed Input

Class II MM1/MM2 north (TTRA): 120 foot buffer (BMP 12.6, 12.6a)
 Class III AF2 east: 140 foot buffer (BMP 12.6, 12.6a)
 Class III HCS west: sideslope buffer required (BMP 12.6, 12.6a)
 Class III HCS northcentral: split yarding and full suspension required (BMP 13.16).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns. WEA 8/28/95

Lands Input

No concerns. NRB 9/21/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 9/21/95

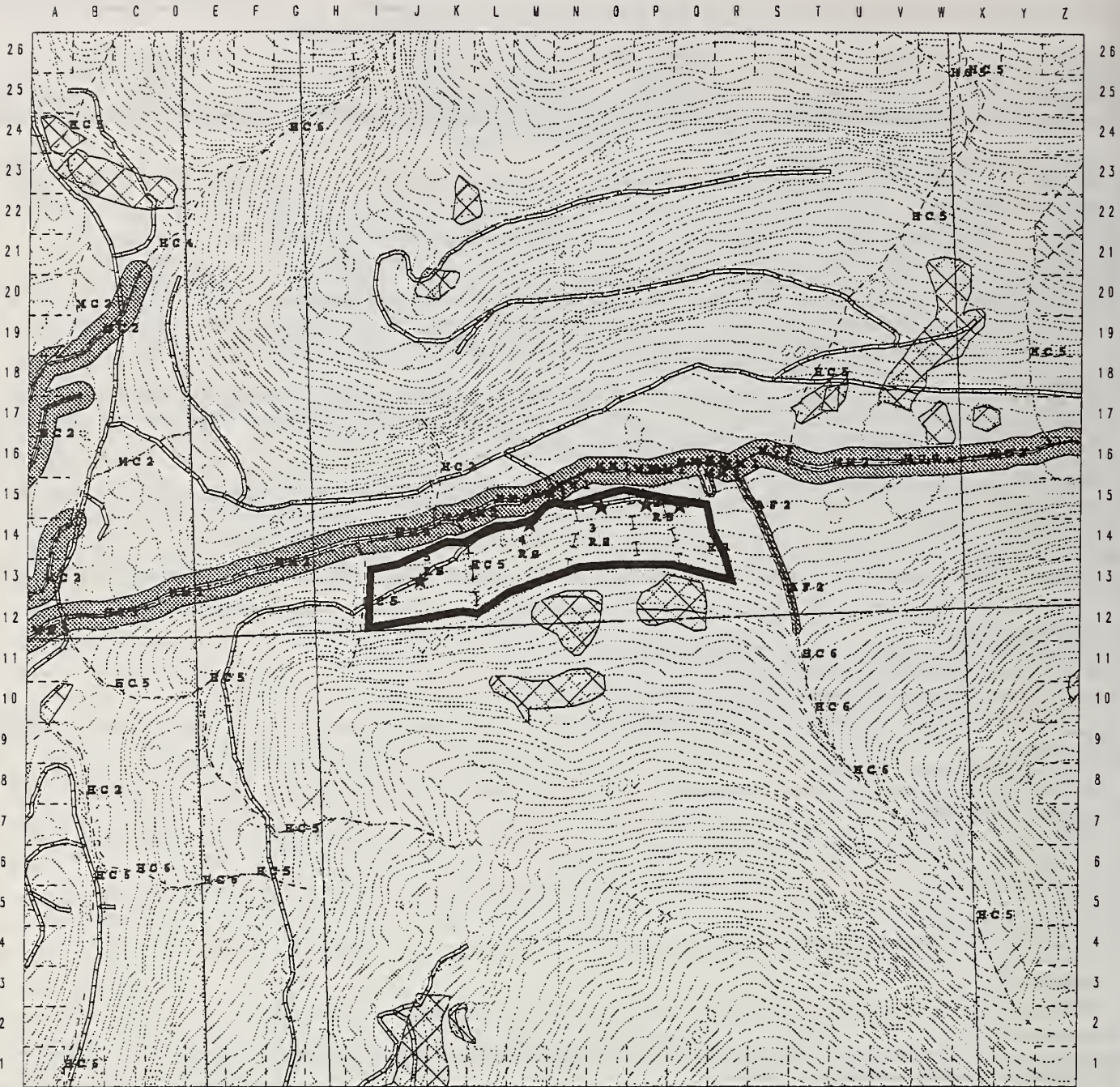
Silviculture Input

Moderately productive with small areas of Hydric soils as well as areas of high mass movement potential. Planting will be needed on 23 acres. Prescription should address partial cut stream buffer. CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C21

Mapscale 1:15840 (4 inch to Mile)

Created 8-14-98, //sfiles/rcf/library/gis/upperc5/rodcard/rod2cord



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 stream		Beach or Estuary Buffer
	Class 2 stream		Private Land
	Class 3 stream		Implementation Buffer
	Section line		Anonymous 100 ft. Buffer
	Planning Road		Body of Water
	Unit Boundary		Prior Harvest
	Setting line		Updates to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

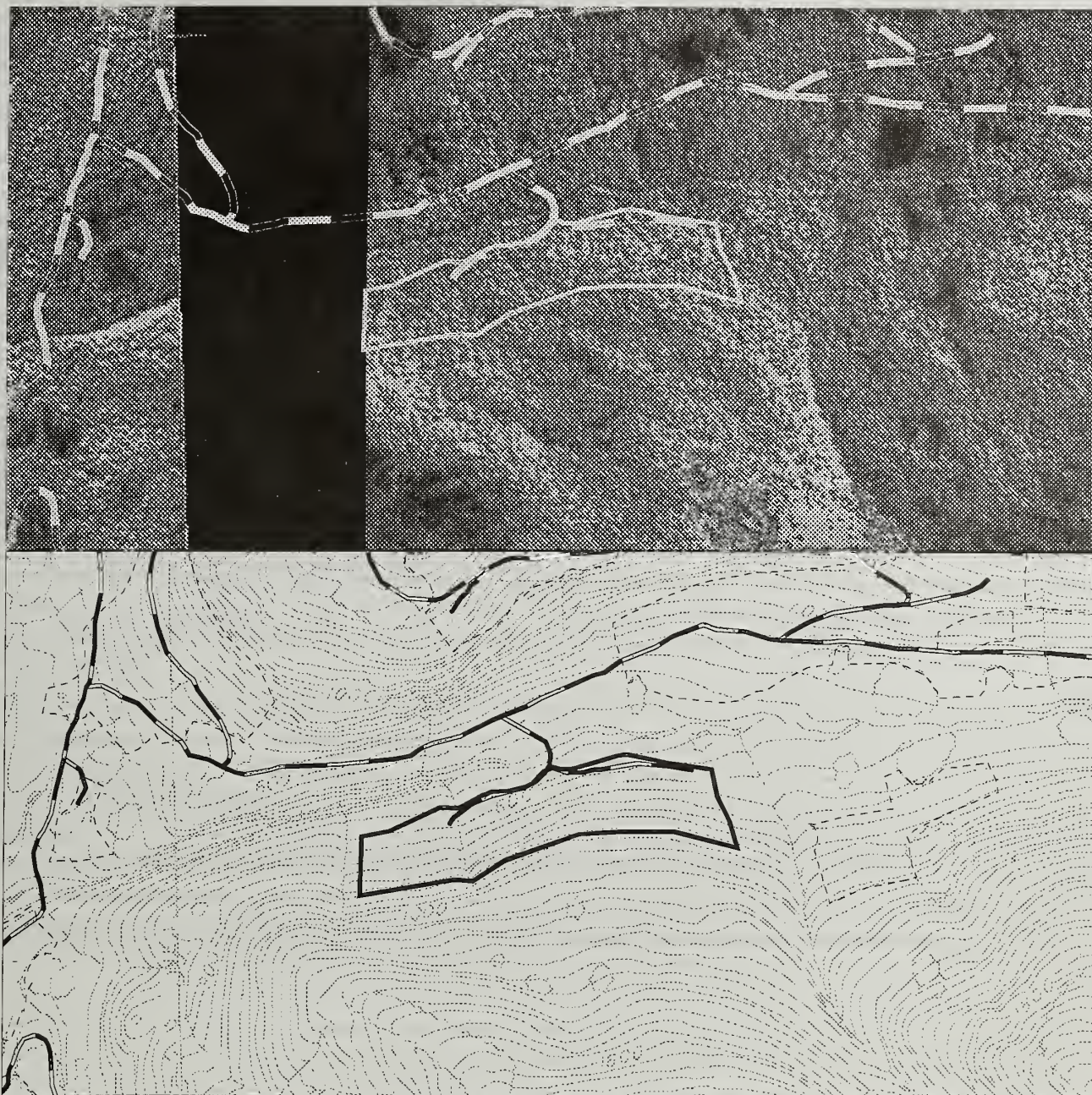
Volc 4 - 22
Volc 5 - 15
Volc 6 - 0
Volc 7 - 0
Total Acres - 36
Potential MBF - 1100
Quarter Quad(s) - KTNC4NW-
VCU Number - 7440
FEIS Unit Number(s) 9 0 0

* Landing

Feet
0 526 1056 1582 2112

Projection - Stateplane

Upper Carrol ROD Unit Schematic for unit c21



General Information:

Volume Class 4 22
 Volume Class 5 15
 Volume Class 6 0
 Non Volume Class 0
 Total acres 36
 potential MBF 1100
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:

9 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C22	Planned Acres: 15.8	Estimated Volume: 348.6	In Alternatives: 2, 3, 5, 6, 0
Silvicultural System: See section	Number of Settings: 3	Quad: KTNC4NW	Photo: 1890-47
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 396	Original LSTA Unit: 744-396

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0	Hemlock 11.2	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: N
Volume class breakdown:	Class 4: 11.2	Class 5: 0.0	Class 6: 0.0	Class 7: 0.0	Low Productive 4.6
Visuals: Seen 0.0	Not Seen 15.8	VQOs: PR- 0.0	MM- 15.8	M- 0.0	P- 0.0 R- 0.0
Recreation: Primary ROS Code P	High VAC 15.8	Intermediate VAC 0.0	Low VAC 0.0	Roadless 15.8	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 0.0	Soils: 0.0	
Mass movement Index:	Low 1.5	Medium 13.9	High 0.4	Very High 0.0	Unknown 0.0
Wetland Information:	Wetland 0.0	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0	2- 1.5 3- 4.0 4- 10.3
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 3.4	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 6.9

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

No concerns. NRB 8/31/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Field reconnaissance indicated that the southern portion of planned unit may have a blindlead if final road location is adjusted. Helicopter logging or a backline adjustment may be required to achieve the required suspension.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7)

Fish/Watershed Input

Stream Class III AF2/HC6 west: 140 foot sideslope buffer (BMP 12.6, 12.6a)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

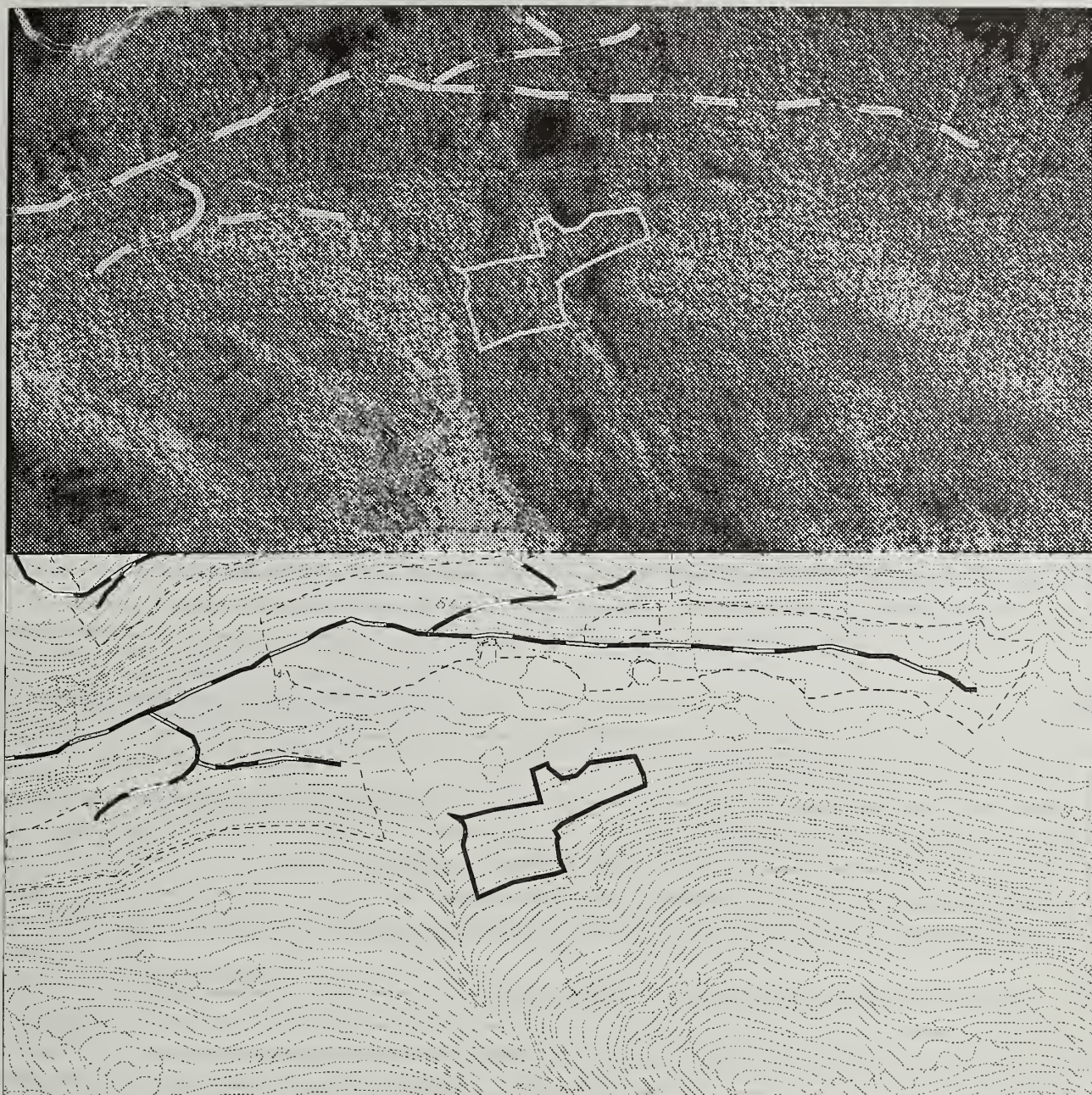
Geological Input

V-notch located along the west side (L-10 to K-14) of this unit. Recommend windfirm slope break buffer be maintained along the edge of this V-notch (BMP 13.16). NRB 8/31/95

Silviculture Input

Moderate productivity with good natural regeneration. Past evidence of windthrow indicates need to establish windfirm boundaries. CBG 10/17/95

Upper Carrol ROD Unit Schematic for unit c22



General Information:

Volume Class 4 11
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 5
 Total acres 16
 potential MBF 349
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:

61 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW

Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C23	Planned Acres: 105.7	Estimated Volume: 2,829.0	In Alternatives: 2, 3, 5, 0, 0
Silvicultural System: See section	Number of Settings: 10	Quad: KTNC4NW	Photo: 1890-46
Management Area: K32	VCU Number: 744	Watershed Code: D70C	WAA Number: 510
		NOI Unit: 1015	Logging systems: - RS, HE
			Original LSTA Unit: 744-417

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0	Hemlock 57.4	Spruce 0.0	Mixed Hem/Spr 32.1	Nonforested 0.0	Aspect: S
Volume class breakdown: Class 4: 57.4	Class 5: 32.1	Class 6: 0.0	Class 7: 0.0	Low Productive 16.2	
Visuals: Seen 0.0	Not Seen 105.7	VQOs: PR- 0.0	MM- 105.7	M- 0.0	P- 0.0 R- 0.0
Recreation: Primary ROS Code P	High VAC 105.7	Intermediate VAC 0.0	Low VAC 0.0	Roadless 105.7	
Riparian MA: Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 12.7	Soils: 2.4		
Mass movement Index: Low 6.1	Medium 90.8	High 8.8	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 0.0
Wetland Information: Wetland 11.7	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0 2- 6.1 3- 39.8 4- 59.7		
High Value Habitat: Sitka Black-Tail Deer- 0.0	Marten- 18.0	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 86.5	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Upper slopes along the north edge of this unit (K-15 to M-15) include high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension in yarding to minimize surface disturbance (BMP 13.9). Shallow soils on upper slopes are subject to windthrow. Recommend that partial cut silviculture systems not be used on these sites. Unit contains forested wetlands along footslope, southern unit boundary (H-12 to N-12) (BMP 12.5). Recommend at least partial suspension to protect wetland functions (BMP 13.9). NRB 8/24/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Field reconnaissance shows that northern most part of planned unit appears to be a blindlead past slope break. Helicopter yard if road location is not feasible.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7) Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7)

Fish/Watershed Input

Class III HC5 stream west: partial-cut buffer (BMP 12.6 & 12.6a)
 Class III HC5 stream central: extended sideslope buffer (BMP 12.6 and 12.6a)
 Class III HC6 stream east: split yarding or full suspension (BMP 13.9)
 Class III AF2 stream east: 140 foot buffer (BMP 12.6 & 12.6a)
 The Fish Biologist will work with the engineers to design the access road as far from the main channel (BMPs 14.2, 14.3).

Wildlife Input

No blasting May 15 to June 15 to protect mountain goat kidding areas.

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/24/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 8/24/95

Silviculture Input

High productivity, monitor regeneration to determine if planting will be necessary. CBG 10/16/95

Upper Carroll Study Area Unit Schematic - ROD Unit C23

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98, //styles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Aerodrome 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setback Line		Updated to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Load
SL Slack Line
SH Shovel Yarding

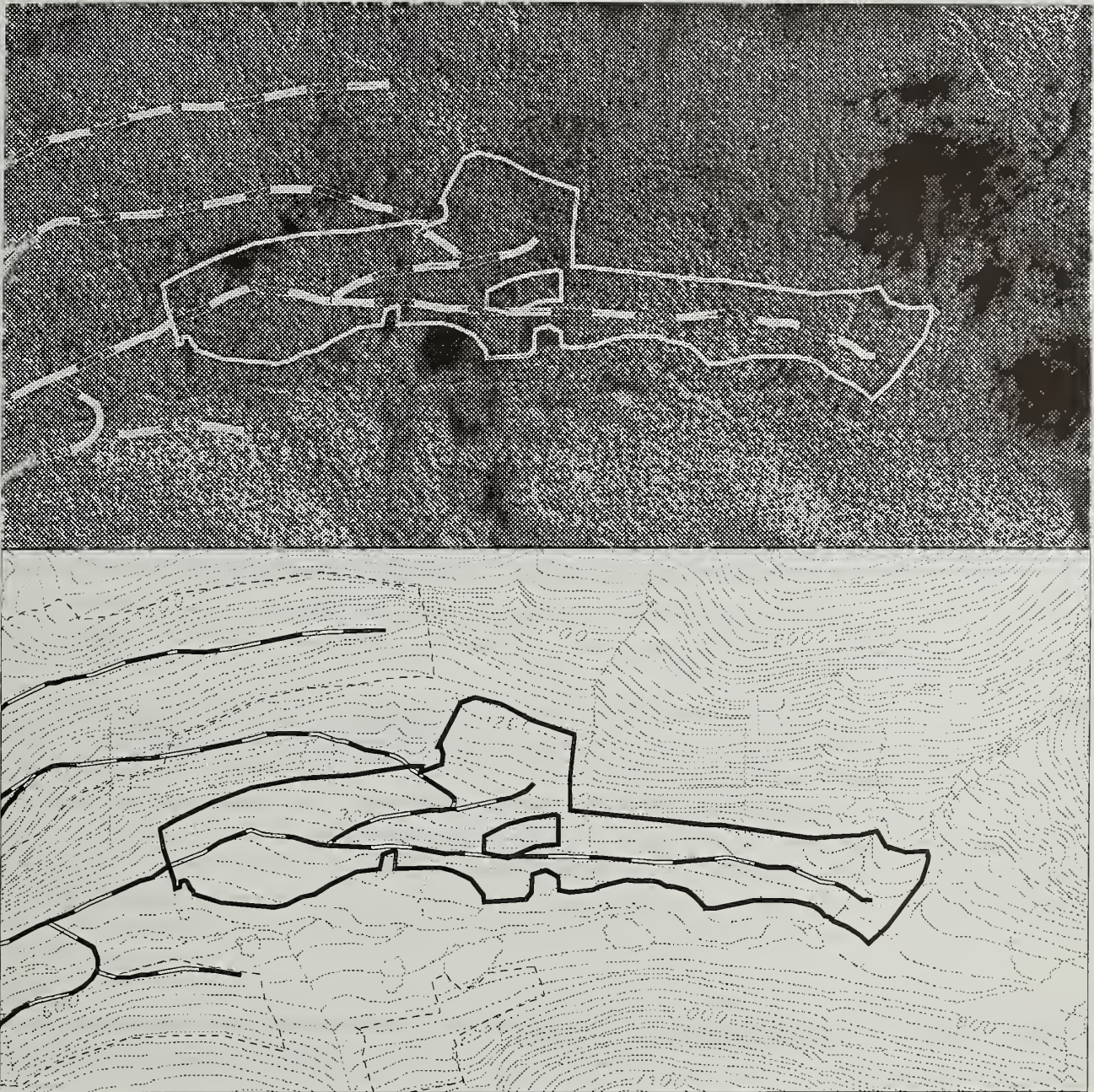
Volc 4 - 57
Volc 5 - 32
Volc 6 - 0
Volc 7 - 16
Total Acres - 106
Potential MBF - 2829
Quarter Quad(s) - KINC4NW-
VCU Number - 7440
FEIS Unit Number(s) 16 0 0

* Landing

Feet
0 526 1056 1582 2112

Projection - Stateplane

Upper Carrol ROD Unit Schematic for unit c23



General Information:

Volume Class 4 57
 Volume Class 5 32
 Volume Class 6 0
 Non Volume Class 16
 Total acres 106
 potential MBF 2829
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 16 0 0

Mapscale is 1:15840 4 inches = 1 mile

located on USGS Quarter Quad(s) KTNC4NW



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C24	Planned Acres: 95.5	Estimated Volume: 2,461.6	In Alternatives: 2, 3, 5, 0, 0
Silvicultural System : See section	Number of Settings: 13	Quad: KTNC4NW	Photo: 1890-46
Management Area: K32	VCU Number: 744	Watershed Code: D70C	Logging systems: - RS
	WAA Number: 510	NOI Unit: 420,421,418	Original LSTA Unit: 744-420

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type:	Cedar 0.0	Hemlock 86.7	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: S
Volume class breakdown:	Class 4: 86.7	Class 5: 0.0	Class 6: 0.0	Class 7: 0.0	Low Productive 0.0	
Visuals:	Seen 6.4	Not Seen 89.1	VQOs:	PR- 0.0	MM- 89.1	M- 0.0
Recreation:	Primary ROS Code P	High VAC 95.5	Intermediate VAC 0.0	Low VAC 0.0	Roadless 95.5	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 0.0	Soils: 0.0		
Mass movement Index:	Low 3.7	Medium 43.7	High 48.0	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 29.3
Wetland Information:	Wetland 3.0	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0	2- 3.7	3- 71.8
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 0.0	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 15.9	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit consists mostly of high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension when yarding (BMP 13.5). Road construction will require full bench and end haul of over burden (BMPs 14.7, 14.12) over much of the length of the proposed road. Upper slopes (K-14 to P-15) in this unit include low productivity, subalpine, mountain hemlock and mixed conifer series sites. Regeneration and growth on these sites may be a concern. Road construction will require some full bench and end haul of waste material (BMPs 14.7 and 14.12) NRB 8/31/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Final road location will determine if unit will be cable yarded or converted to helicopter yarding..

Engineering Input

High MMI soils. Road construction must minimize landslide potential. Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7)

Fish/Watershed Input

No fisheries concerns.

Wildlife Input

No blasting May 15 to June 15 to protect mountain goat kidding area.

Recreation / Visuals Input

No concerns WEA 8/28/95

Lands Input

No concerns. NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

No concerns. NRB 8/31/95

Silviculture Input

Moderate productivity with small areas of Hydric and Mass movement prone soils that will need to be planted. (3 acres). Also, High productivity yet scattered pockets of Alaska yellow cedar decline and landslide prone soils exist. High elevation areas will require planting. (3 acres). Past evidence of windthrow indicates need for windfirm boundary location. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C24

Mapscale 1:15840 (4 inch to Mile)

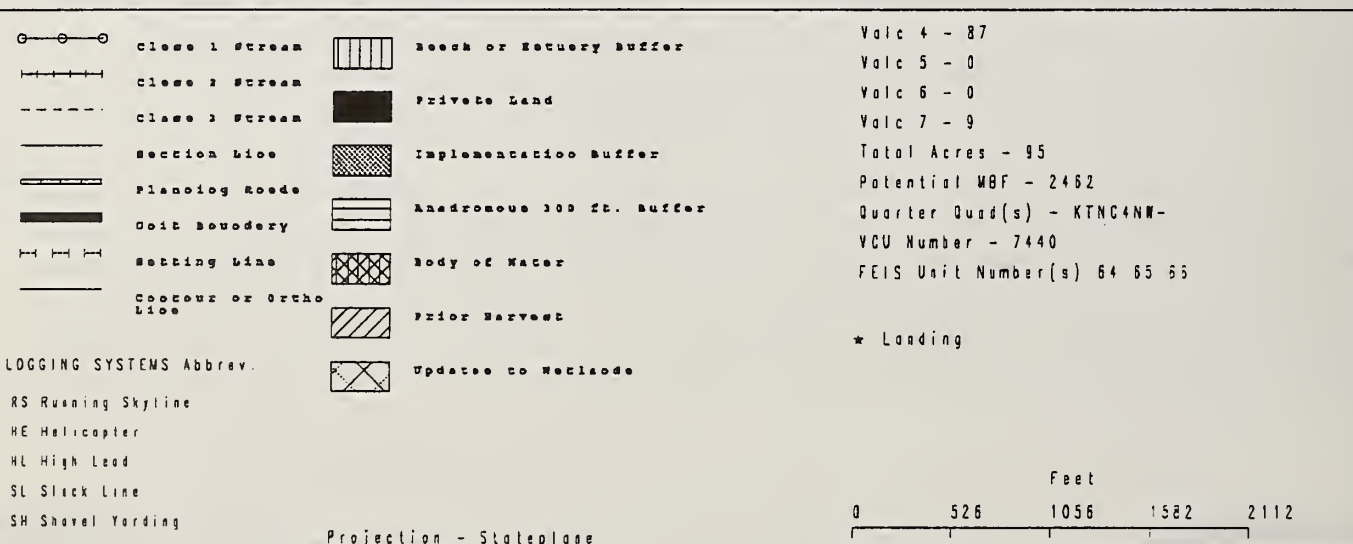
Created 8-14-96, /istiles/ref/library/gis/uppcr5/rodcard/rod2card



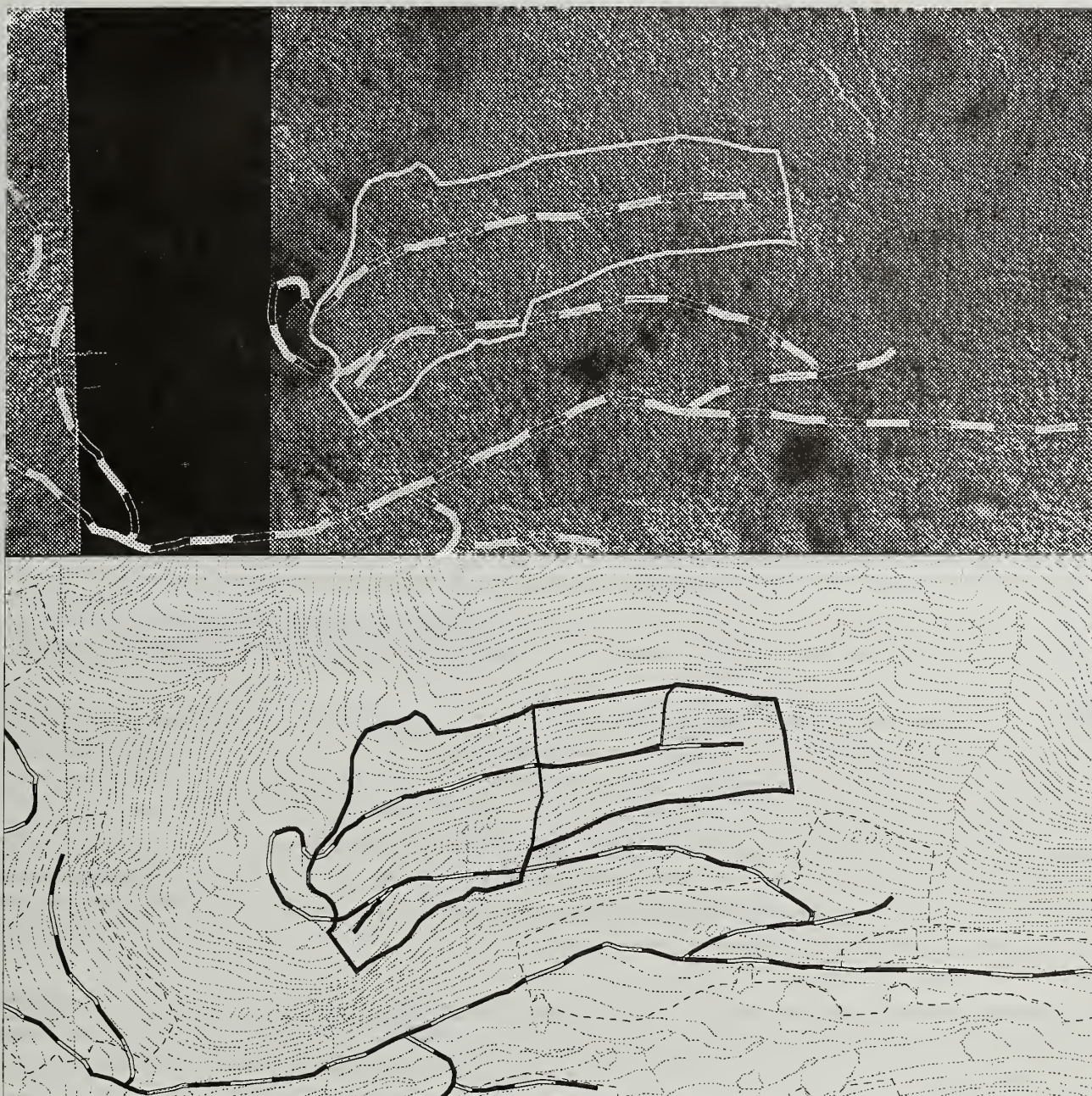
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c24



General Information:

Volume Class 4	87
Volume Class 5	0
Volume Class 6	0
Non Volume Class	9
Total acres	95
potential MBF	2462
VCU Number	7440

located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
64 65 66

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C25	Planned Acres: 40.6	Estimated Volume: 906.5	In Alternatives: 2, 3, 5, 0, 0
Silvicultural System: See section	Number of Settings: 3	Quad: KTNC5NE	Photo: 1890-46
Management Area: K32	VCU Number: 744	Watershed Code: D70C	Logging systems: - RS
	WAA Number: 510	NOI Unit: 423	Original LSTA Unit: 744-423

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0	Hemlock 29.4	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: SW
Volume class breakdown:	Class 4: 29.4	Class 5: 0.0	Class 6: 0.0	Class 7: 0.0	Low Productive 11.3
Visuals: Seen 1.7	Not Seen 38.9	VQOs: PR- 0.0	MM- 38.9	M- 0.0	P- 0.0 R- 0.0
Recreation: Primary ROS Code P	High VAC 40.6	Intermediate VAC 0.0	Low VAC 0.0	Roadless 40.6	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 4.4	Soils: 0.0	
Mass movement Index: Low 5.1	Medium 24.3	High 11.3	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 1.2
Wetland Information:	Wetland 0.0	Mix Wetland 0.0	Riparian Soil 0.8	Site Productivity Classes 1- 0.8	2- 5.1 3- 6.2 4- 28.6
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 0.0	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 26.5

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

The upper slopes (M-16 to O-12) of this unit includes high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension when yarding (BMP 13.9).

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Eastern portion of planned unit appears to be a blindlead. Run profiles to verify feasibility and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7) Steelhead/Coho/Pink/Chum timing (July 18 - August 7) may apply for all road construction and/or drainage installations.

Fish/Watershed Input

Class II MC2 stream northwest (TTRA): sideslope plus 100 foot buffer
 Class II MC2 stream southwest (TTRA): sideslope plus 100 foot buffer
 Class III MC2 stream southcentral: split yarding or full suspension required

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns. WEA 9/30/95

Lands Input

No concerns. NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

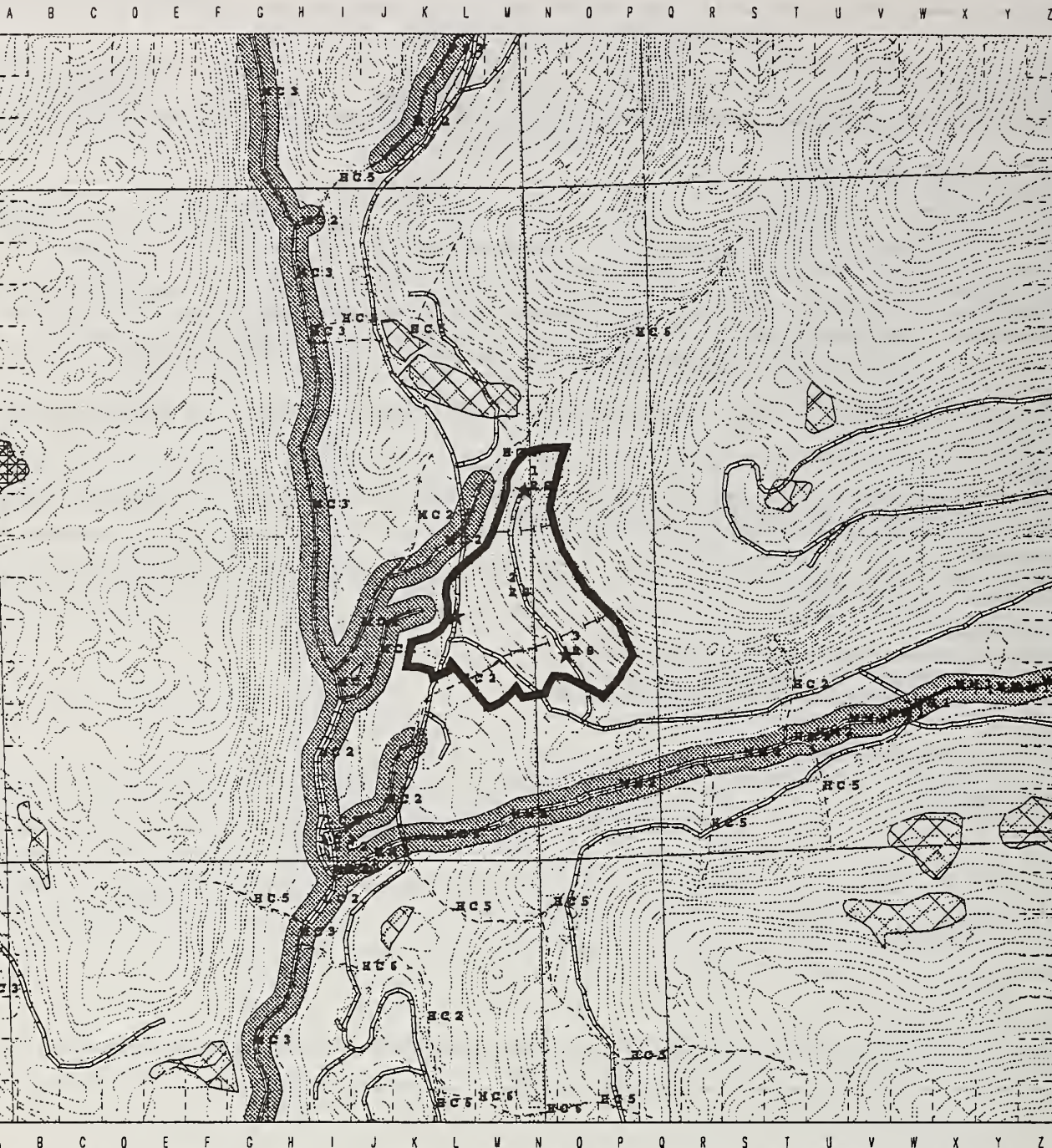
No concerns. NRB 8/31/95

Silviculture Input

High productivity with small areas of high elevation and high mass movement soils. Planting will be required, using Alaska yellow cedar if available. (5 acres)
 CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C25

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, //sfiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Wetland Buffer
	Class 2 Stream		Private Lead
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Roads		Body of Water
	Coit Boundary		Prior Harvest
	Settling Line		Update to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

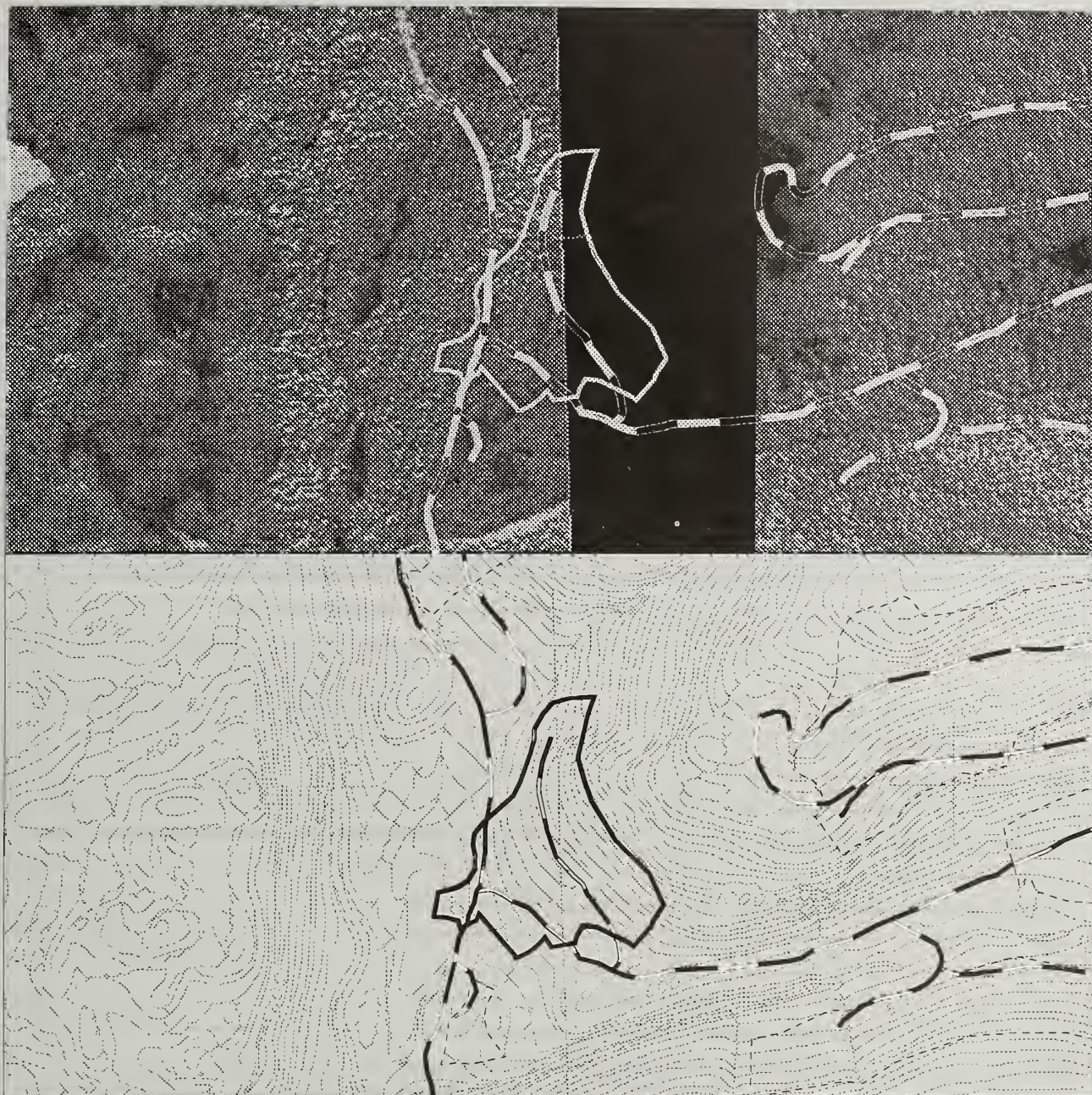
Valc 4 - 29
Valc 5 - 0
Valc 6 - 0
Valc 7 - 11
Total Acres - 41
Potential MBF - 906
Quarter Quad(s) - KTNC4NW-KTNC5NE
VCU Number - 7440
FEIS Unit Number(s) 67 0 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c25



General Information:

Volume Class 4 29
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 11
 Total acres 41
 potential MBF 906
 VCU Number 7440

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 67 0 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW KTNC5NE

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C26 **Planned Acres:** 65.4 **Estimated Volume:** 1,948.5 **In Alternatives:** 2, 3, 5, 6, 0
Silvicultural System : See section **Number of Settings:** 8 **Quad:** KTNC5NE **Photo:** 1573-160 **Logging systems:** - RS
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D70C **WAA Number:** 510 **NOI Unit:** 430,431 **Original LSTA Unit:** 744-430

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 58.2 Spruce 0.0 Mixed Hem/Spr 0.4 Nonforested 0.0 **Aspect:** NW,SW
Volume class breakdown: Class 4: 19.6 Class 5: 38.9 Class 6: 0.1 Class 7: 0.0 **Low Productive** 6.8
Visuals: Seen 9.4 Not Seen 66.1 **VQOs:** PR- 0.0 MM- 20.4 M- 0.0 P- 0.0 R- 0.0
Recreation: **Primary ROS Code** P **High VAC** 29.7 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 65.4
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 1.5 Class 3 Stream: 6.9 **Soils:** 2.5
Mass movement Index: Low 4.1 Medium 54.8 High 6.6 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.1
Wetland Information: Wetland 12.2 Mix Wetland 0.0 Riparian Soil 0.1 **Site Productivity Classes** 1- 4.2 2- 0.0 3- 34.7 4- 26.6
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 47.0
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

High landslide potential soils are found in the central (N-13) part of the unit (BMP 13.5). Recommend at least partial log suspension when yarding to minimize soil surface disturbance (BMP 13.9). A small area of forested wetland (BMP 12.5) is located in the south (M-11) part of the unit. This area could be shovel logged (BMP 13.9). NRB 8/31/95. Also, lower part of unit consists of a combination of high landslide potential, MMI=3 (BMP 13.5), soils and forested wetlands (BMP 12.5). These areas will require at least partial log suspension during yarding to minimize soil surface disturbance (BMP 13.9). NRB 9/18/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Eastern portion of planned unit appears to be a blindlead. Verify feasibility and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential. (BMP 14.7) Oversteepened slopes may require full bench construction and endhaul of waste. (BMP 14.7)

Fish/Watershed Input

Class II MC2 stream north (TTRA): 100 foot buffer (BMP 12.6, 12.6a)
 Class II FP3 stream east: 130 foot buffer (BMP 12.6, 12.6a)
 Class II MC3 stream west (TTRA): 100 foot buffer (BMP 12.6 and 12.6a)
 Class III HC3 stream north: sideslope buffer (BMP 12.6)

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

Mainline road runs through unit. Identified VQO is maximum modification. WEA 9/30/95

Lands Input

No concerns. NRB 8/31/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

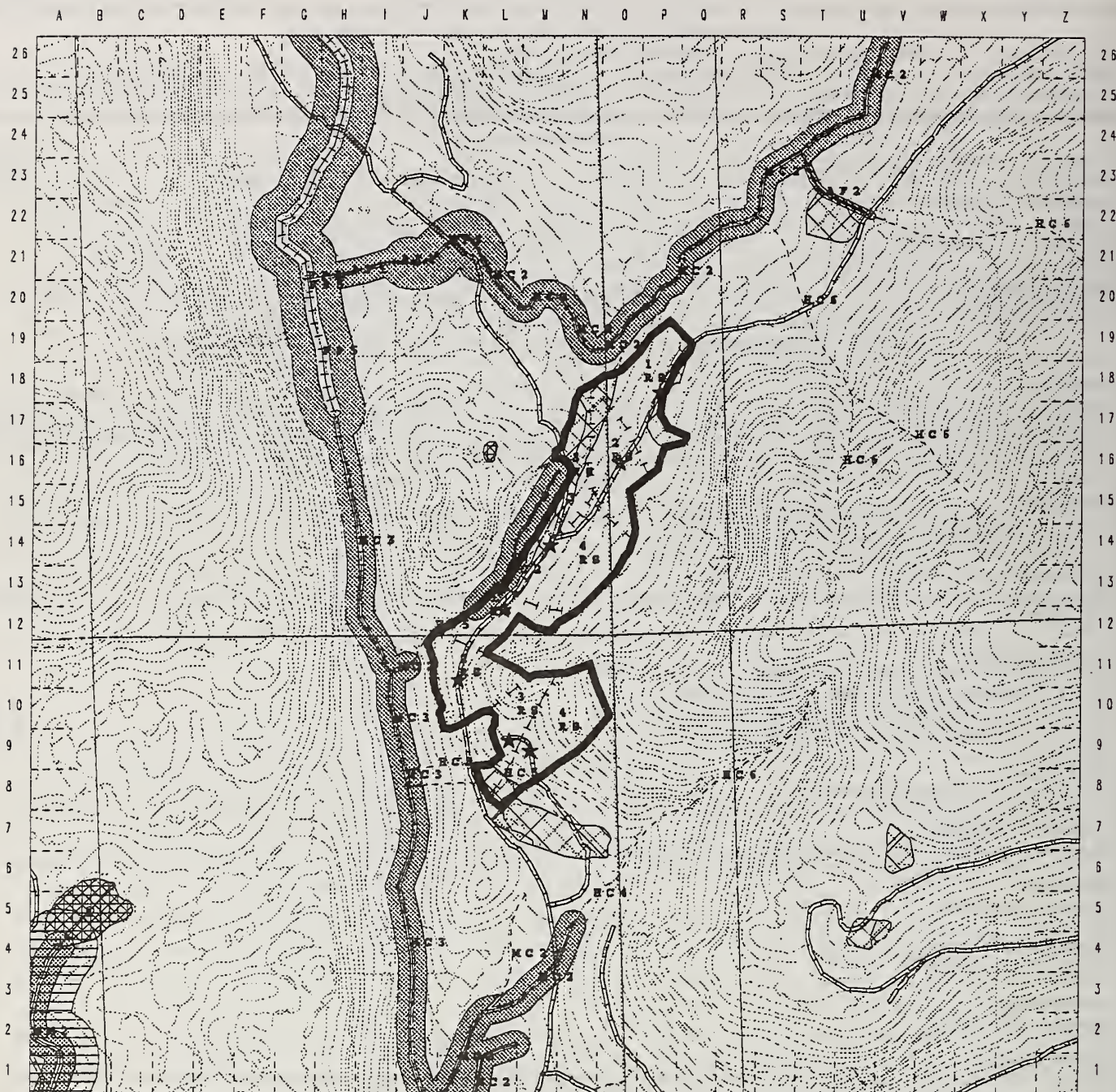
No concerns. NRB 8/31/95

Silviculture Input

High productivity with small areas of Hydric soils that will need to be planted. (3 acres) and high elevation and high mass movement soils. Planting will be required, using high elevation Sitka spruce or Alaska yellow cedar if available. (3 acres) CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C26

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, /tstiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setting Line		Updates to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

Volc 4 - 20
Volc 5 - 39
Volc 6 - 0
Volc 7 - 7
Total Acres - 65
Potential MBF - 1949
Quarter Quad(s) - KTNC4NW-KTNC5NE
VCU Number - 7440
FEIS Unit Number(s) 72 73 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c26



General Information:

Volume Class 4	20
Volume Class 5	39
Volume Class 6	0
Non Volume Class	7
Total acres	65
potential MBF	1949
VCU Number	7440

Note: Map compiled from various digital data.
This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
FEIS Alternative Units. Refer to the following FEIS units
in the FEIS Appendix for detailed unit information:
72 73 0

Mapscale is 1:15840 4 inches = 1 mile



located on USGS Quarter Quad(s) KTNC4NW KTNC5NE

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C27 **Planned Acres:** 24.0 **Estimated Volume:** 824.6 **In Alternatives:** 2, 3, 5, 6, 0
Silvicultural System : See section **Number of Settings:** 2 **Quad:** KTNC4NW **Photo:** 1890-44 **Logging systems:** - RS
Management Area: K32 **VCU Number:** 744 **Watershed Code:** D69B **WAA Number:** 510 **NOI Unit:** 952 **Original LSTA Unit:** 744-952

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 12.9 Spruce 0.0 Mixed Hem/Spr 10.3 Nonforested 0.0 **Aspect:** NW
Volume class breakdown: Class 4: 12.9 Class 5: 0.0 Class 6: 10.3 Class 7: 0.0 **Low Productive** 0.8
Visuals: Seen 0.0 Not Seen 24.0 **VQOs:** PR- 0.0 MM- 24.0 M- 0.0 P- 0.0 R- 0.0
Recreation: **Primary ROS Code** P **High VAC** 24.0 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 24.0
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 5.0 **Soils:** 24.0
Mass movement Index: Low 0.0 Medium 15.7 High 8.3 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 2.1 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 3.1 3- 0.0 4- 20.9
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 19.2

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

The upper parts of this unit (N,O-13) have a high landslide potential, MMI=3 (BMP 13.5). Unit contains about 4 acres of forested wetlands in the northeast corner (M-14) (BMP 12.5). ~~Recommend at least partial log suspension when yarding these areas (BMP 13.9). Upper slopes (N-14 to J-12) consist of subalpine~~ ecosystem and includes mountain hemlock plant series. Natural regeneration may be a problem on these soils. Northwest corner (K-14) of unit consists of an alluvial/colluvial fan may contain fish habitat (BMP 12.6). NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Eastern portion of planned unit appears to be a blindlead. Verify feasibility and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential (BMP 14.7)

Fish/Watershed Input

Class II MC2 stream northwest (TTRA): sideslope plus 100 foot no cut buffer (BMP 12.6, 12.6a).
 Class III AF2 stream northeast: sideslope no cut buffer (BMP 12.6, 12.6a).
 Class III HC6 stream central: split yarding and full suspension required (BMP 13.16, 13.9).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/29/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

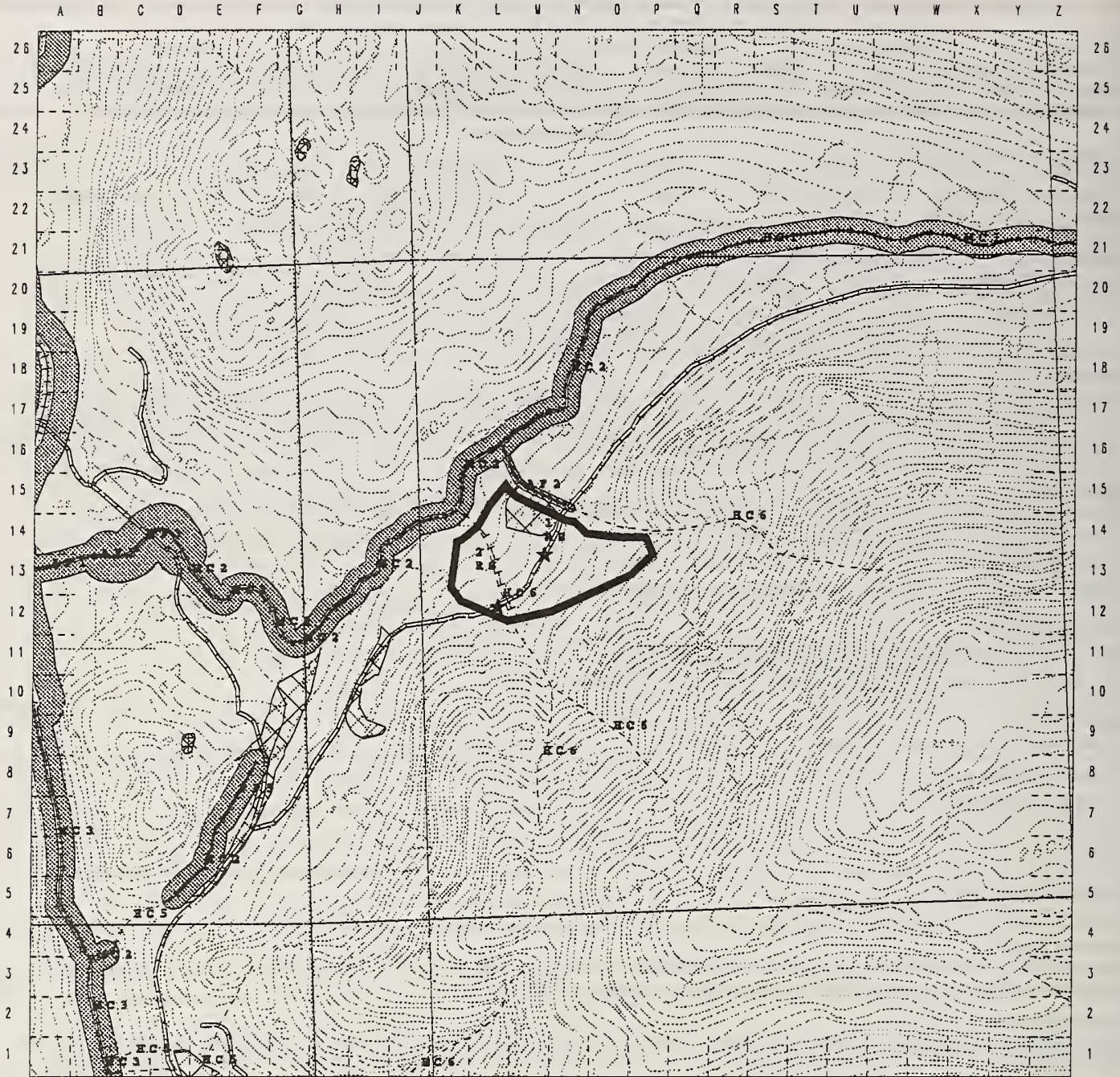
Harvest unit is next to avalanche tract (P-14 to M-15). Avalanching has potential to damage regeneration and transportation facilities. Recommend that an avalanche firm buffer of trees be maintained along the northeast unit boundary. NRB 8/10/95

Silviculture Input

High productivity with areas of high elevation and Hydric soils that will need to be planted. (6 acres) Plant Sitka spruce adjacent to existng avalanche chute. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C27

Mapscale 1:15840 (4 inch to Mile)
Created 6-14-98, /istiles/ref/library/gis/upperc5/rodcord/rod2cord



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anadromous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Setting Line		Updates to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Lead
SL Slack Line
SH Shovel Yarding

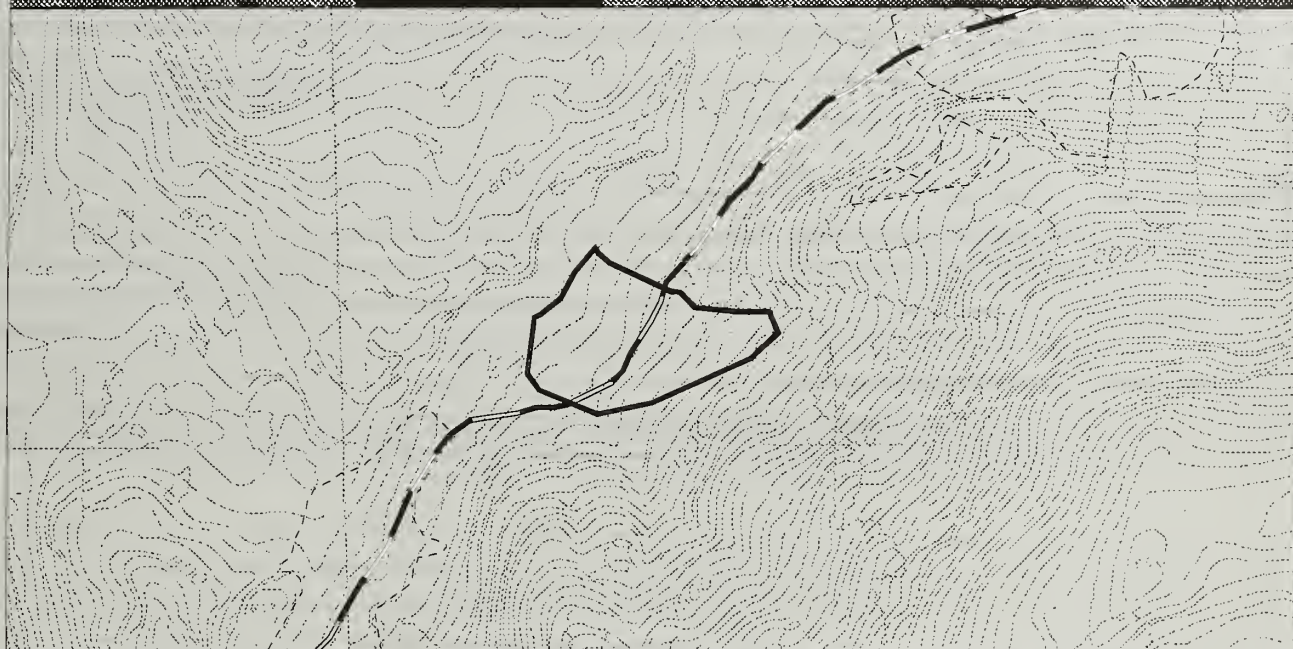
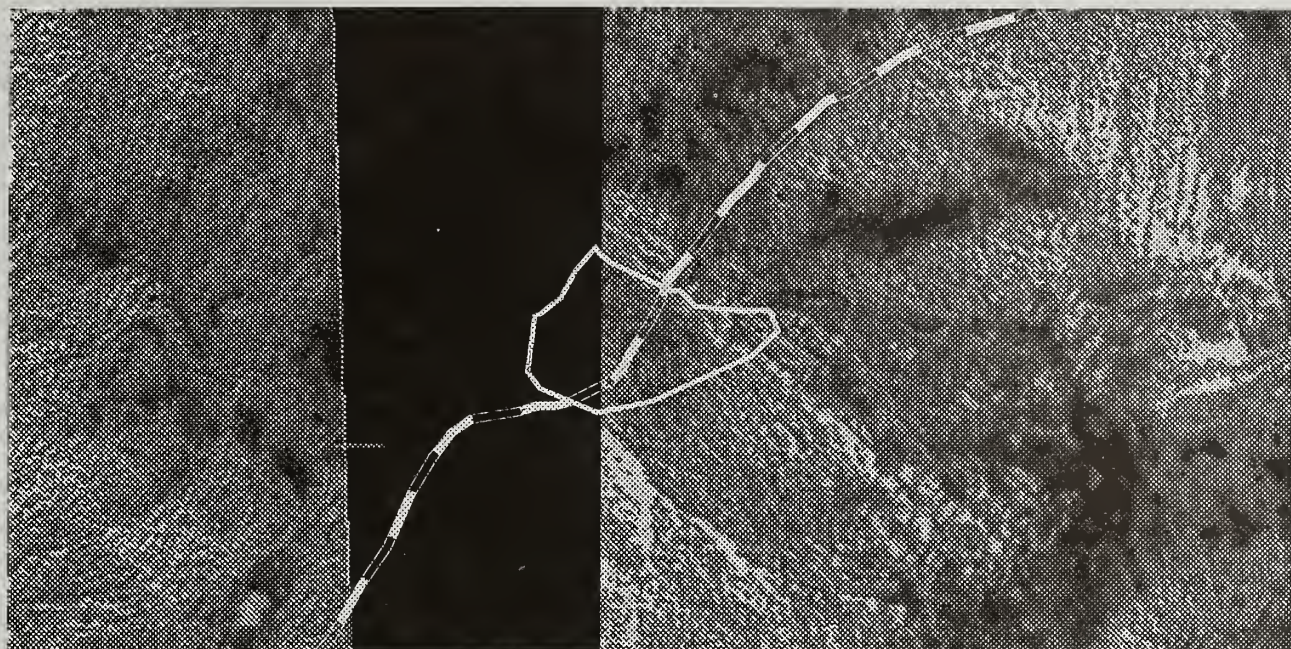
Valc 4 - 13
Valc 5 - 0
Valc 6 - 10
Valc 7 - 1
Total Acres - 24
Potential MBF - 825
Quarter Quad(s) - KTNC4NW-
VCU Number - 7440
FEIS Unit Number(s) 130 0 0

* Landing

Projection - Stateplane

Feet
0 526 1056 1582 2112

Upper Carrol ROD Unit Schematic for unit c27



General Information:

Volume Class 4 13
 Volume Class 5 0
 Volume Class 6 10
 Non Volume Class 1
 Total acres 24
 potential MBF 825
 VCU Number 7440
 located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
 This map map not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 130 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C28	Planned Acres: 5.1	Estimated Volume: 65.6	In Alternatives: 2, 3, 5, 6, 0	
Silvicultural System : See section	Number of Settings: 1	Quad: KTNC4NW	Photo: 1890-44	Logging systems: - HE
Management Area: K32	VCU Number: 744	Watershed Code: D69B	WAA Number: 510	NOI Unit: 437 Original LSTA Unit: 744-437

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type:	Cedar 0.0	Hemlock 1.1	Spruce 0.0	Mixed Hem/Spr 0.0	Nonforested 0.0	Aspect: N
Volume class breakdown:	Class 4: 1.1	Class 5: 0.0	Class 6: 0.0	Class 7: 0.0	Low Productive 4.0	
Visuals:	Seen 0.0	Not Seen 5.1	VQOs:	PR- 0.0	MM- 5.1	M- 0.0 P- 0.0 R- 0.0
Recreation:	Primary ROS Code P	High VAC 5.1	Intermediate VAC 0.0	Low VAC 0.0	Roadless 5.1	
Riparian MA:	Class 1 Stream: 0.0	Class 2 Stream: 0.0	Class 3 Stream: 0.0	Soils: 0.0		
Mass movement Index:	Low 0.0	Medium 0.0	High 5.1	Very High 0.0	Unknown 0.0	Slopes Greater Than 72% 0.4
Wetland Information:	Wetland 0.0	Mix Wetland 0.0	Riparian Soil 0.0	Site Productivity Classes 1- 0.0 2- 5.1 3- 0.0 4- 0.0		
High Value Habitat:	Sitka Black-Tail Deer- 0.0	Marten- 0.0	River Otter- 0.0	Bald Eagle- 0.0	Black Bear- 1.1	

Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input
Unit is made up of high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension during yarding (BMP 13.9) NRB 9/18/95

Timber Input
Planned logging systems design for this unit is Helicopter.

Engineering Input
There are no engineering mitigation measures anticipated for this unit.

Fish/Watershed Input
No concerns. SPL 1/3/95

Wildlife Input
No wildlife mitigation measures identified.

Recreation / Visuals Input
No Concerns WEA 8/29/95

Lands Input
No concerns. NRB 9/18/95

Cultural Resource Input
No cultural resources identified. RL 9/30/95

Geological Input
No concerns. NRB 9/18/95

Silviculture Input
Low productivity, apply shelterwood harvest system leaving all trees 13" DBH and under standing. CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C28

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, /tstfiles/ref/library/gis/upperc5/rodcord/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards

	Class 1 Stream		Beach or Estuary Buffer
	Class 2 Stream		Private Land
	Class 3 Stream		Implementation Buffer
	Section Line		Anonymous 100 ft. Buffer
	Planning Roads		Body of Water
	Unit Boundary		Prior Harvest
	Section Line		Updates to Wetlands
	Contour or Ortho Line		

LOGGING SYSTEMS Abbrev.

RS Running Skyline
HE Helicopter
HL High Load
SL Slack Line
SH Shovel Yarding

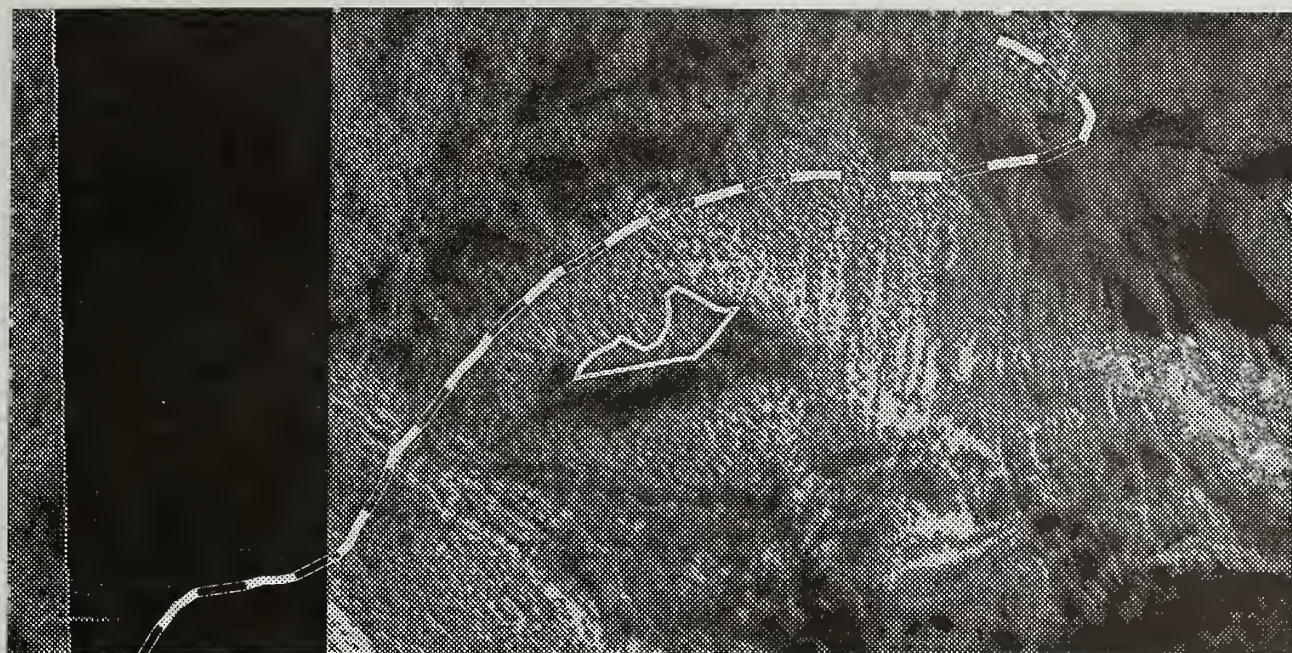
Valc 4 - 1
Valc 5 - 0
Valc 6 - 0
Valc 7 - 4
Total Acres - 5
Potential MBF - 66
Quarter Quad(s) - KTNC4NW-
VCU Number - 7440
FEIS Unit Number(s) 74 0 0

* Landing

Projection - Stateplane



Upper Carrol ROD Unit Schematic for unit c28



General Information:

Volume Class 4 1
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 4
 Total acres 5
 potential MBF 66
 VCU Number 7440
 located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 74 0 0

Mapscale is 1:15840 4 inches = 1 mile



Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C29 Planned Acres: 35.7 Estimated Volume: 876.9 In Alternatives: 2, 3, 5, 6, 0
 Silvicultural System : See section Number of Settings: 3 Quad: KTNC4NW Photo: 1890-44 Logging systems: - RS
 Management Area: K32 VCU Number: 744 Watershed Code: D69B WAA Number: 510 NOI Unit: 953 Original LSTA Unit: 744-953

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 30.1 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 **Aspect:** N
Volume class breakdown: Class 4: 30.1 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 **Low Productive** 5.6
Visuals: Seen 0.0 Not Seen 35.7 **VQOs:** PR- 0.0 MM- 35.7 M- 0.0 P- 0.0 R- 0.0
Recreation: Primary ROS Code P **High VAC** 35.7 **Intermediate VAC** 0.0 **Low VAC** 0.0 **Roadless** 35.7
Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 **Soils:** 14.0
Mass movement Index: Low 3.1 Medium 32.6 High 0.0 Very High 0.0 Unknown 0.0 **Slopes Greater Than 72%** 0.0
Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.0 **Site Productivity Classes** 1- 0.0 2- 3.1 3- 32.6 4- 0.0
High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 25.7
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Unit has a medium potential for landslides, MMI=2 (BMP 13.5). No special mitigation measures are required. NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Southwestern portion of planned unit appears to be a blindlead. Verify feasibility and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize potential for landslides. (BMP 14.7)

Fish/Watershed Input

Class II MC1 stream north: sideslope plus 100 foot no cut buffer (BMP 12.6, 12.6a).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/29/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

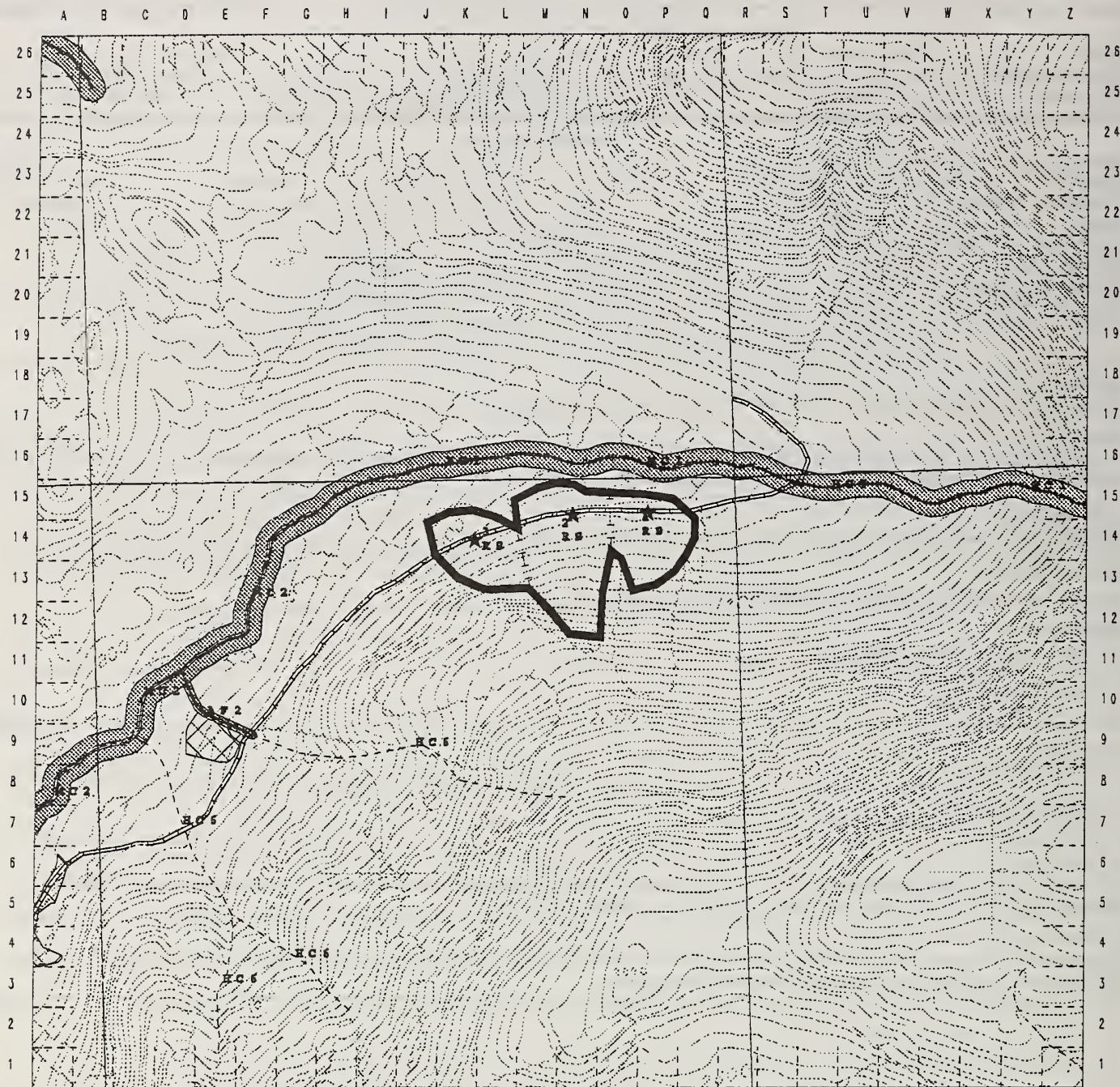
Unit is located next to a large avalanche tract (N-13 to Q-15). Regeneration and transportation facilities may suffer avalanche damage. Recommend that an avalanche firm buffer of trees be maintained along the eastern unit boundary. NRB 8/10/95

Silviculture Input

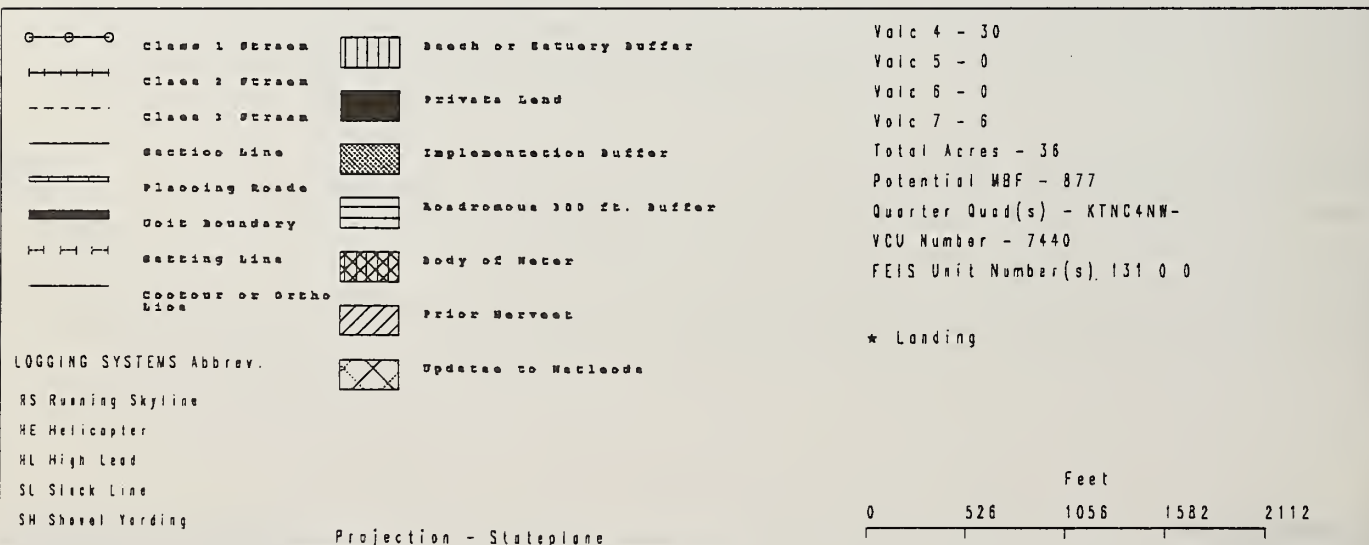
High productivity with areas of high elevation and high mass movement soils. Planting will be required, using high elevation Sitka spruce and Alaska yellow cedar if available. Plant Sitka spruce adjacent to avalanche chute.(8 acres)

Upper Carroll Study Area Unit Schematic - ROD Unit C29

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-98, //sfiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c29



General Information:

Volume Class 4 30
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 6
 Total acres 36
 potential MBF 877
 VCU Number 7440
 located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 131 0 0

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Upper Carroll FEIS - Unit Data Card - Planned Configuration

ROD Unit: C30 Planned Acres: 22.7 Estimated Volume: 593.3 In Alternatives: 2, 3, 5, 6, 0
 Silvicultural System: See section Number of Settings: 1 Quad: KTNC4NW Photo: 1890-44 Logging systems: - RS
 Management Area: K32 VCU Number: 744 Watershed Code: D69B WAA Number: 510 NOI Unit: 954 Original LSTA Unit: 744-954

Physical Description

(Numbers are Acres unless otherwise noted)

Forest type: Cedar 0.0 Hemlock 21.0 Spruce 0.0 Mixed Hem/Spr 0.0 Nonforested 0.0 Aspect: SW
 Volume class breakdown: Class 4: 21.0 Class 5: 0.0 Class 6: 0.0 Class 7: 0.0 Low Productive 1.7
 Visuals: Seen 0.0 Not Seen 22.7 VQOs: PR- 0.0 MM- 22.7 M- 0.0 P- 0.0 R- 0.0
 Recreation: Primary ROS Code P High VAC 22.7 Intermediate VAC 0.0 Low VAC 0.0 Roadless 22.7
 Riparian MA: Class 1 Stream: 0.0 Class 2 Stream: 0.0 Class 3 Stream: 0.0 Soils: 0.0
 Mass movement Index: Low 0.0 Medium 16.0 High 6.7 Very High 0.0 Unknown 0.0 Slopes Greater Than 72% 0.0
 Wetland Information: Wetland 0.0 Mix Wetland 0.0 Riparian Soil 0.0 Site Productivity Classes 1- 0.0 2- 0.1 3- 0.0 4- 22.6
 High Value Habitat: Sitka Black-Tail Deer- 0.0 Marten- 0.0 River Otter- 0.0 Bald Eagle- 0.0 Black Bear- 4.9
 Data derived from digital geographic data. The coverages may not have met National Map Accuracy Standards.

Soils Input

Part of unit above 1,300' elevation (L-14 to N-14) is made up of high landslide potential soils, MMI=3 (BMP 13.5). Recommend at least partial log suspension on these soils (BMP 13.9). Lower slopes have a low landslide potential, MMI=1. No special mitigation measures are recommended on these soils. Elevations above 1,500' are subalpine sites with mountain hemlock plant series. Regeneration may be a problem on these sites. NRB 8/10/95

Timber Input

Planned logging systems design for this unit is Running Skyline. Confirm final road and landing locations. Northern portion of planned unit appears to be a blindlead. Verify feasibility and modify unit boundary as required.

Engineering Input

High MMI soils. Road construction must minimize landslide potential (BMP 14.7)

Fish/Watershed

Class II MC1 stream south (TTRA): sideslope plus 100 foot no cut buffer (BMP 12.6, 12.6a).

Wildlife Input

No wildlife mitigation measures identified.

Recreation / Visuals Input

No concerns WEA 8/29/95

Lands Input

No concerns. NRB 8/10/95

Cultural Resource Input

No cultural resources identified. RL 9/30/95

Geological Input

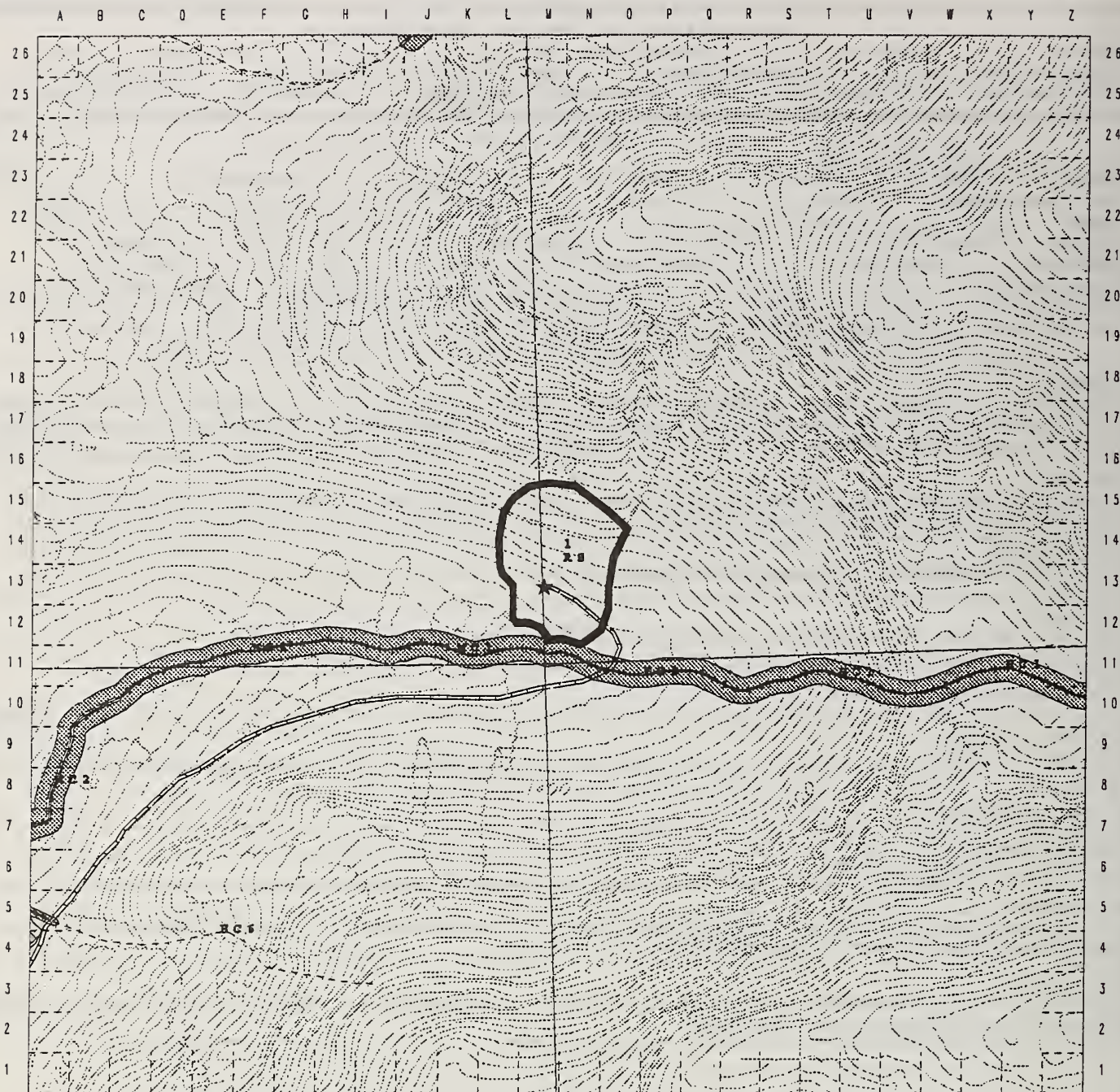
Unit is located next avalanche tract (O-12 to O-15). Regeneration and transportation facilities may be damaged by avalanches. Recommend an avalanche firm buffer be maintained along the eastern unit boundary. NRB 8/10/95

Silviculture Input

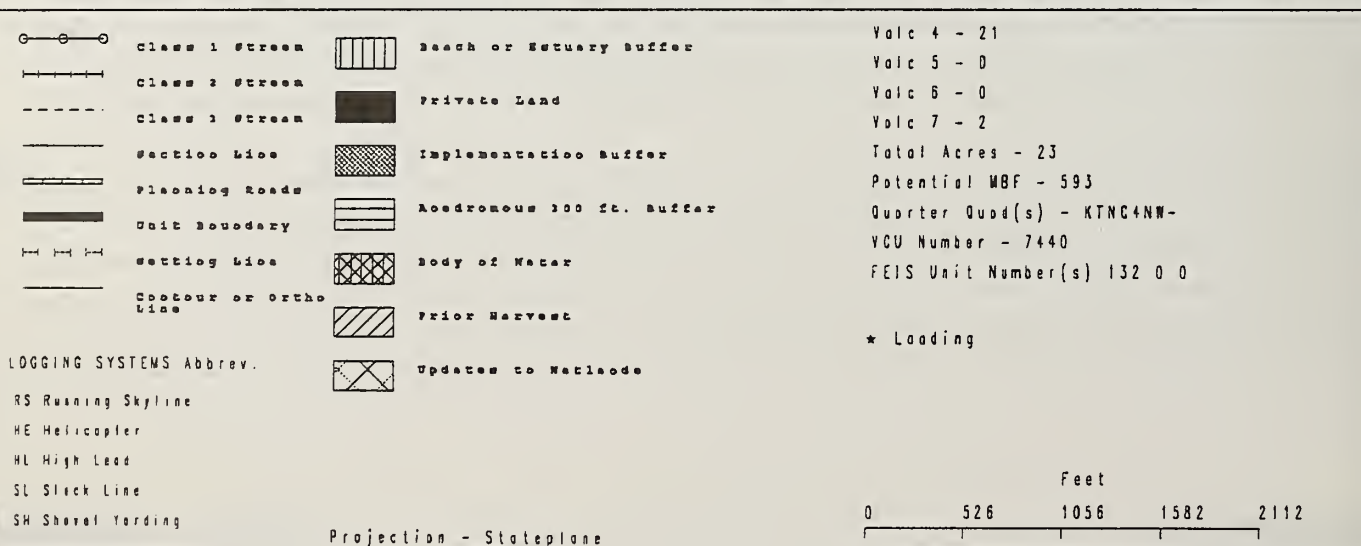
High productivity with areas of high elevation, high mass movement soils, as well as existing avalanche chutes. Planting will be required, using Alaska yellow cedar and high elevation Sitka spruce.(8 acres) CBG 10/17/95

Upper Carroll Study Area Unit Schematic - ROD Unit C30

Mapscale 1:15840 (4 inch to Mile)
Created 8-14-96, /tstiles/ref/library/gis/upperc5/rodcard/rod2card



Note: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards



Upper Carrol ROD Unit Schematic for unit c30



General Information:

Volume Class 4 21
 Volume Class 5 0
 Volume Class 6 0
 Non Volume Class 2
 Total acres 23
 potential MBF 593
 VCU Number 7440
 located on USGS Quarter Quad(s) KTNC4NW

Note: Map compiled from various digital data.
 This map may not meet National Map Accuracy Standards

This unit may have been derived from a combination of
 FEIS Alternative Units. Refer to the following FEIS units
 in the FEIS Appendix for detailed unit information:
 132 0 0

Mapscale is 1:15840 4 inches = 1 mile



Record of Decision

Layout Notes

Timber:

Fisheries:

Wildlife:

Soils:

Other:

Table X. Prescriptions for harvest units in the Record of Decision (ROD).

ROD Unit	EIS Unit	Prescription	TLMP Standards & Guidelines		
			Option 1	Option 2	Option 3
C1	127	Class I FP3 stream (TTRA): 200 foot buffer			X
C2	125	Class I FP3 stream northeast (TTRA): 200 foot buffer			X
C3	111	Class I FP3 stream south (TTRA): 200 foot buffer			X
		Class II HC2 stream northwest (TTRA): 100 foot buffer			X
C4	119	Class II MC2 stream northeast (TTRA): 100 foot buffer			X
C5	120	Class III HC stream central: split yard or full suspension			X
C6	121	No fisheries or watershed concerns	N/A	N/A	N/A
C7	35 & 38	Class III HC5 stream south: split yard or full suspension		X	X
		Class III HC5 stream northeast: sideslope buffer		X	X
C8	3, 27 & 28	Class III HC5 stream west: split yard or full suspension		X	X
		Class III HC5 stream central: split yard or full suspension		X	X
		Class II HC3 stream north (TTRA): 120 foot buffer		X	X
C9	40 & 41	Class II HC3 stream south (TTRA): 120 foot buffer		X	X
		Class III HC5 stream east: split yarding or full suspension		X	X
C11	47 & 49	Class I MMI/MM2 stream north (TTRA): 300 foot buffer	X	X	X
		Class III HC6 stream east: sideslope buffer		X	X
		Class III HC5 east: split yard or full suspension		X	X
		Class III HC6 southwest (south reach): sideslope buffer		X	X
		Class III HC6 southwest (north reach): split yard or full suspension		X	X
C12	19	Class II MMI stream south: 120 foot buffer		X	X
		Class III HC5 streams east: split yard or full suspension		X	X
C13	20	Class II MMI stream southwest (TTRA): 120 foot buffer		X	X
		Class III HC6 stream central: split yarding or full suspension		X	X
C14	21	Class III HC6 stream east: sideslope buffer		X	X
C15	22	Class II MMI stream south (TTRA): 120 foot buffer		X	X
		Class III HC6 stream central: split yarding or full suspension		X	X
C16	51	Class III HC5 stream south: sideslope buffer		X	X
		Class III HC6 stream central: split yarding or full suspension		X	X
C17	55 & 138	Class I FP3 stream west (TTRA): 200 foot buffer		X	X
		Class II MC2 stream north (TTRA): 100 foot buffer		X	X

C18	8	Class I FP5 stream southwest (TTRA): 300 foot buffer	X	X	X
		Class III HC5 streams northwest: split yarding or full suspension		X	X
		Class III HC4 stream west: split yarding or full suspension		X	X
		Class III HC5 stream south: sideslope buffer		X	X
C19	57, 58 & 59	Class I FP5 stream southwest (TTRA): 300 foot buffer	X	X	X
		Class II LC2 stream west: sideslope plus 100 foot buffer	X	X	X
		Class II MC3 stream west: sideslope plus 100 foot buffer	X	X	X
		Class II MMI stream north (TTRA): 200 foot buffer		X	X
		Class III HC5 stream central: split yard or full suspension		X	X
		Class III HC6 stream north: split yard or full suspension		X	X
C20	68	Class II HC3 stream south (TTRA): 120 foot buffer		X	X
		Class II MC2 stream west (TTRA): 100 foot buffer		X	X
C21	9	Class II MMI/MM2 stream north (TTRA): 120 foot buffer		X	X
		Class III AF2 stream east: 140 foot buffer		X	X
		Class III HC5 stream west: split yard or full suspension		X	X
C22	61	Class III AF2 stream west: 140 foot buffer		X	X
C23	16	Class II MMI/MM2 stream south (TTRA): 120 to 200 foot variable buffer		X	X
		Class III AF2 stream east: 140 foot buffer		X	X
		Class III HC5 stream east: split yard or full suspension		X	X
		Class III HC5 stream central: sideslope buffer		X	X
		Class III HC5 stream west: partial cut buffer		X	X
C24	64, 65 & 66	No fisheries or watershed concerns	N/A	N/A	N/A
C25	67	Class II MC2 stream northwest (TTRA): sideslope plus 100 foot buffer	X	X	X
		Class II MC2 stream southwest (TTRA): sideslope plus 100 foot buffer	X	X	X
		Class III MC2 stream south: split yard or full suspension		X	X
C26	72 & 73	Class II FP3 stream east: 130 foot buffer		X	X
		Class II MC3 stream west (TTRA): sideslope plus 100 foot buffer	X	X	X
		Class III HC5 stream north: sideslope buffer		X	X
C27	130	Class II MC2 stream northwest (TTRA): sideslope plus 100 foot buffer	X	X	X
		Class III AF1 stream northeast: variable sideslope buffer		X	X
		Class III HC6 stream central: split yarding or full suspension		X	X
C28	74	No fisheries or watershed concerns		X	X
C29	131	Class II MC1 stream north (TTRA): sideslope plus 100 foot buffer	X	X	X
C30	132	Class II MC1 stream south (TTRA): sideslope plus 100 foot buffer	X	X	X
Option 2 Standards and Guidelines have been modified on a site-specific basis following analysis of pertinent issues.					

Appendix 3

ROD Road Cards

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 83, 8337, 8337100, 8340, 8340100 M.P. 0.00 to M.P. END

Sale/Offering Area ROD Road #(s) 83, 8337, 8337100, 8340, 8340100

New Construction (New or RE) Planned Length Actual Length

Unit(s) accessed: 127, 125, 111, 119, 120, 121 [ROD # C1 to C6] Road Locator: Olen

Road Management Objectives:

Function Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale: 2 Post Sale: 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Administrative

Erosion Control: water bar

Other Considerations:

All roads are existing roads in the Shelter Cove area, no reconstruction planned, pre-haul maintenance required prior to log haul.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns

AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

No concerns

RECON/PLANNED STREAM CROSSINGS: 1 CLASS I 0 CLASS II 0 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No Concerns. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

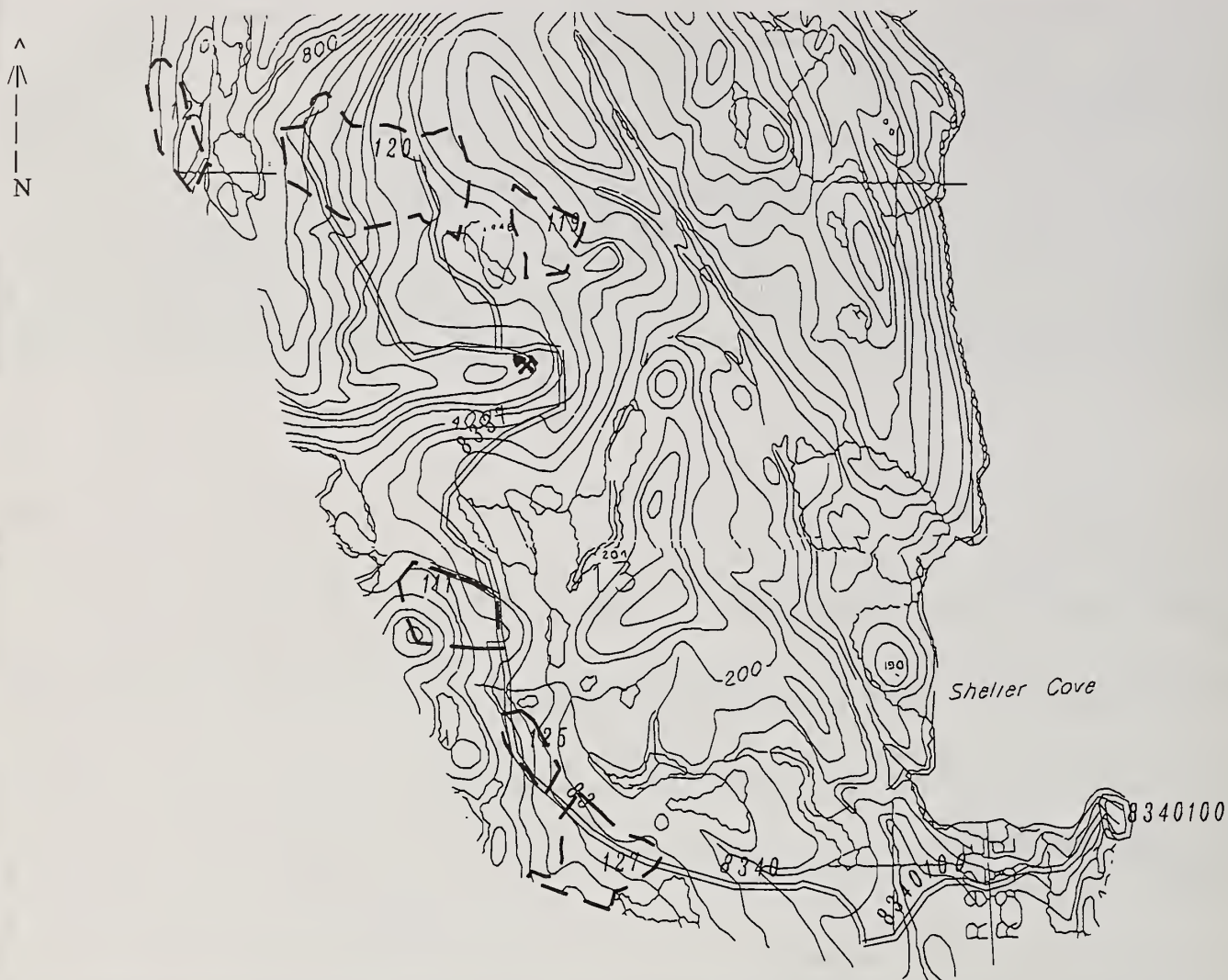
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns







AS LOCATED:





SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

Photo #



- | | |
|---|---------------------|
|  | Rock Quarry |
|  | Stream Protection |
|  | Muskeg |
|  | Fish Passage |
|  | Timing and Passage |
|  | Potential Heli Ldgs |

- | | |
|---|-----------------------|
|  | Existing Roads |
|  | Construction |
|  | Reconstruction |
|  | Harvest unit |

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

1 major drainage structures required, planned as large culvert.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. **8400550** M.P. 0.00 to M.P. 0.50
Sale/Offering Area: ROD Road #(s) **8400550**
NEW Construction (New or RE) Planned Length 0.50 Actual Length
Unit(s) accessed: **40, 41 [ROD# - C09]** Road Locator: Lybrand

Road Management Objectives:

Funct Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT
Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1
Intended Purpose and Use: silvicultural purposes
Management Strategy: Encourage Accept Discourage Eliminate Prohibit X
Closure Devices: Barrier
Erosion Control: water bar
Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Fish timing may be required for all instream road construction due to the close proximity of anadromous fish habitat. Timing window will be established after road location is finalized and inspected by District Biologist. Passage will be required on all Class I and II streams.

RECON/PLANNED STREAM CROSSINGS: 1 CLASS I 1 CLASS II 1 CLASS III

P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: The upper section of this road segment crosses some areas of MMI=3 soils. Full bench road construction may be required to minimize the potential for slope failures.

AS LOCATED:

BMPs Applied: 13.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

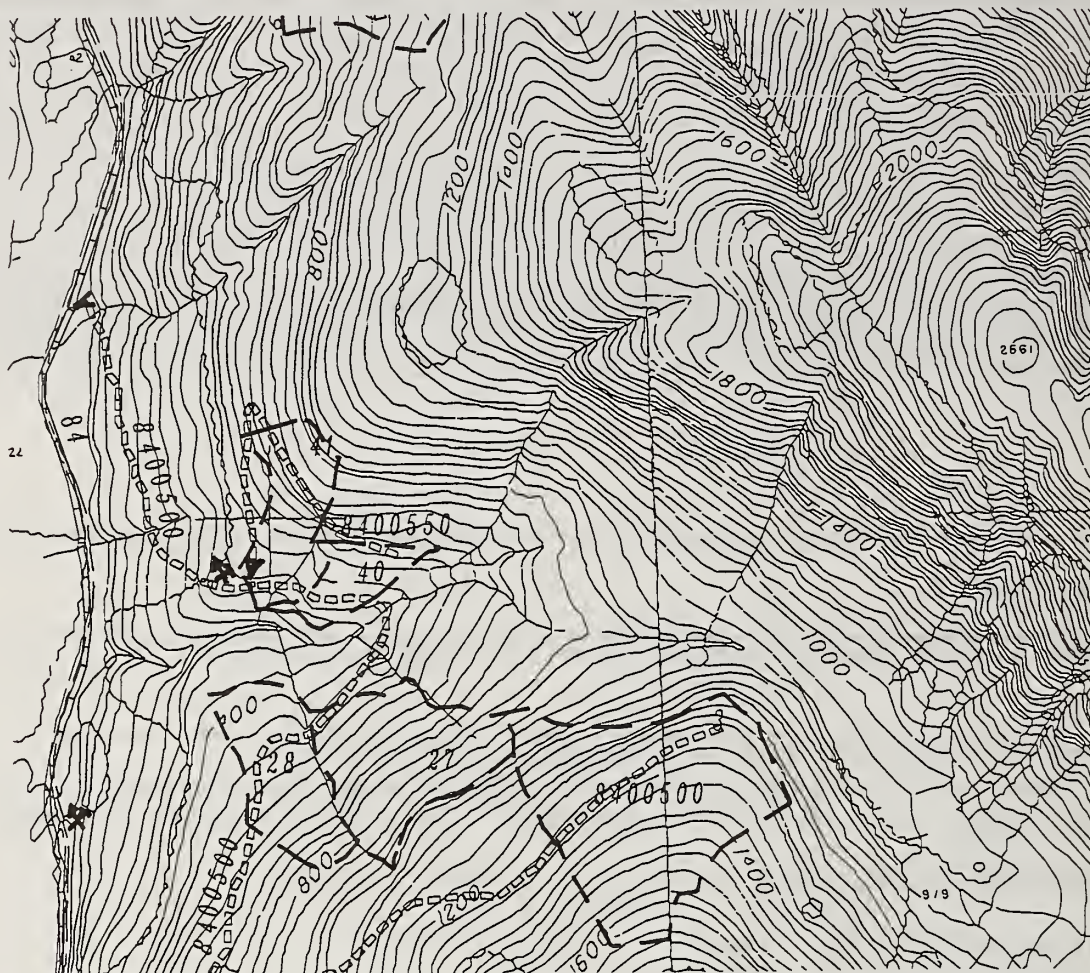
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 / \
 |
 |
 |
 N



- X Rock Quarry
- 000- Stream Protection
- W Muskeg
- P Fish Passage
- T Timing and Passage
- H Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):
 1 major drainage structures required, planned as large culvert.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8400600 M.P. 0.00 to M.P. 1.00
Sale/Offering Area: ROD Road #(s) 8400600
NEW Construction (New or RE) Planned Length 1.00 Actual Length
Unit(s) accepted: 55,138 [C17] Road Locator: Roussio

Road Management Objectives:

Function Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale: 2 Post Sale: 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 0 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No concerns. NRB 4/12/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

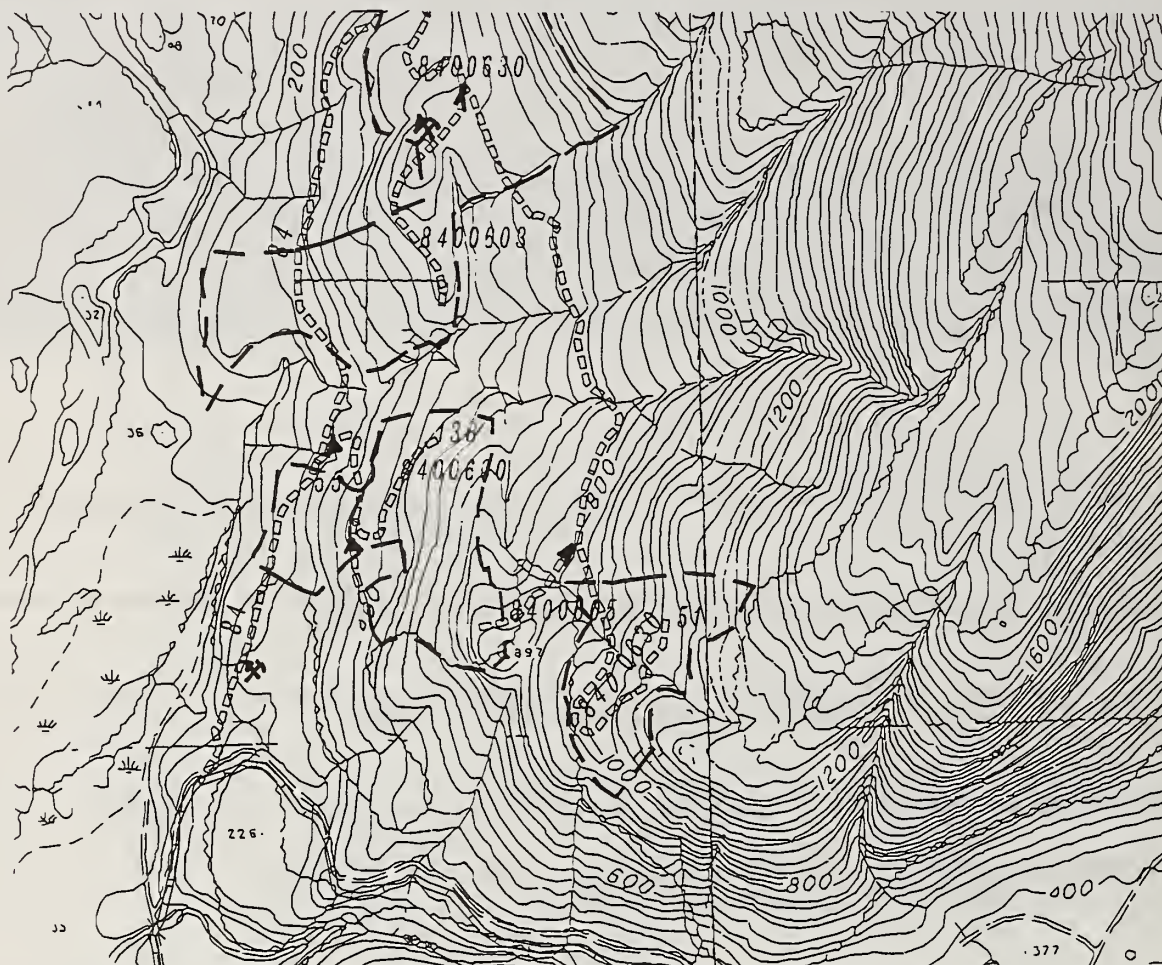
Road #: 8400600 Map #: KTN C5 NE
 SCALE: 1" = 1320 feet







Aerial Photo: Yr. 71

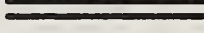


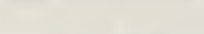
Line

Photo # 1573-162

^
N



-  Rock Quarry
-  Stream Protection
-  Muskeg
-  Fish Passage
-  Timing and Passage
-  Potential Heli Ldgs

-  Existing Roads
-  Construction
-  Reconstruction
-  Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

krdktel/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. **8400605** M.P. 0.00 to M.P. 0.30
Sale/Offering Area: ROD Road #(s) **8400605**
NEW Construction (New or RE) Planned Length: 0.30 Actual Length:
Unit(s) accessed: **138 [ROD# - C17]** Road Locator: Rousso

Road Management Objectives:

Funct Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale: 2 Post Sale: 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit **X**

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 1 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No concerns. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

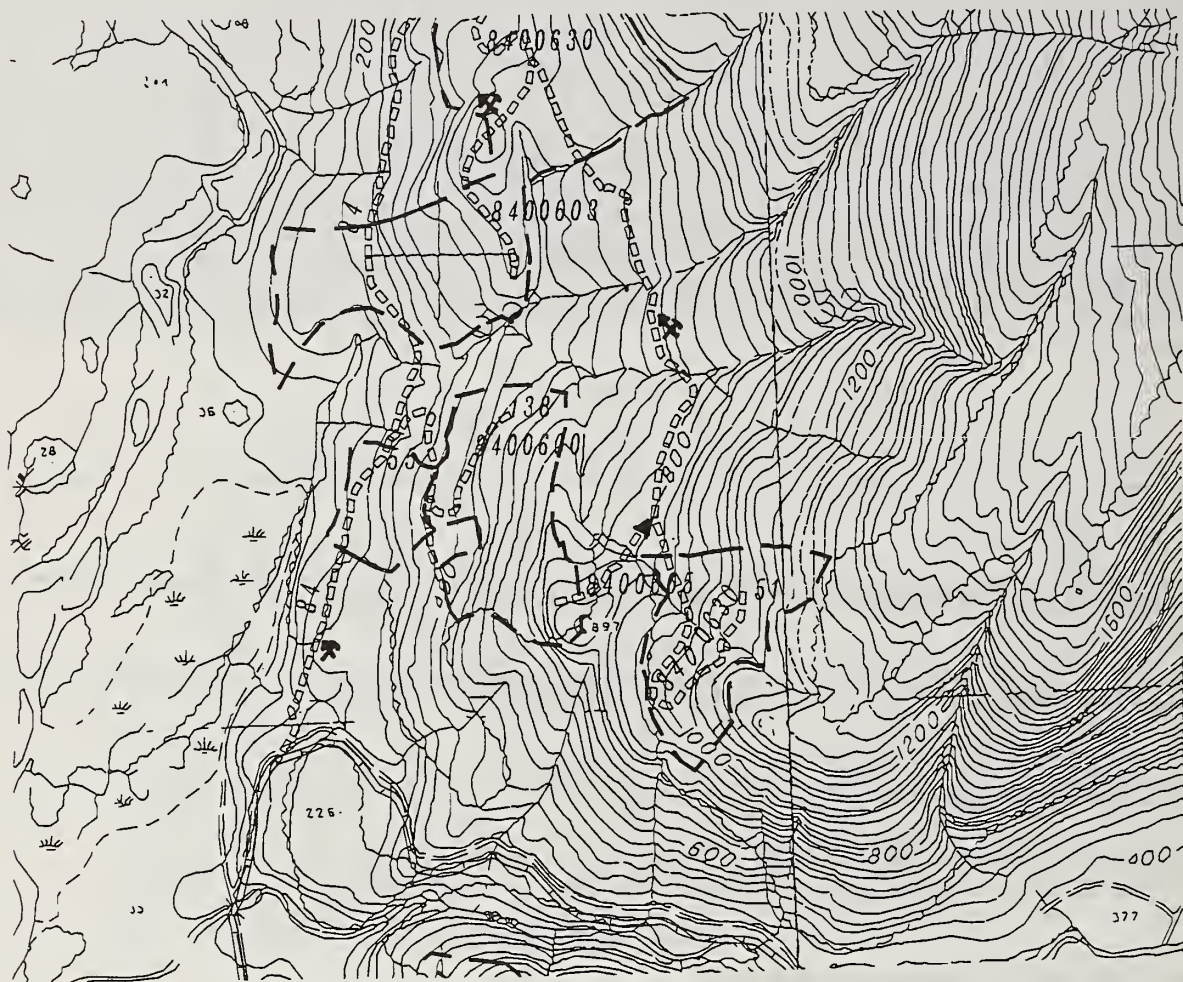
AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 \ /

 N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8400630 M.P. 0.00 to M.P. 1.90
Sale/Offering Area ROD Road #(s) 8400630
NEW Construction (New or RE) Planned Length 1.90 Actual Length
Unit(s) accessed 51.8 [ROD# - C16 and C18] Road Locator: Lybrand

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 7 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No endhaul material to be placed on wetland areas.

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

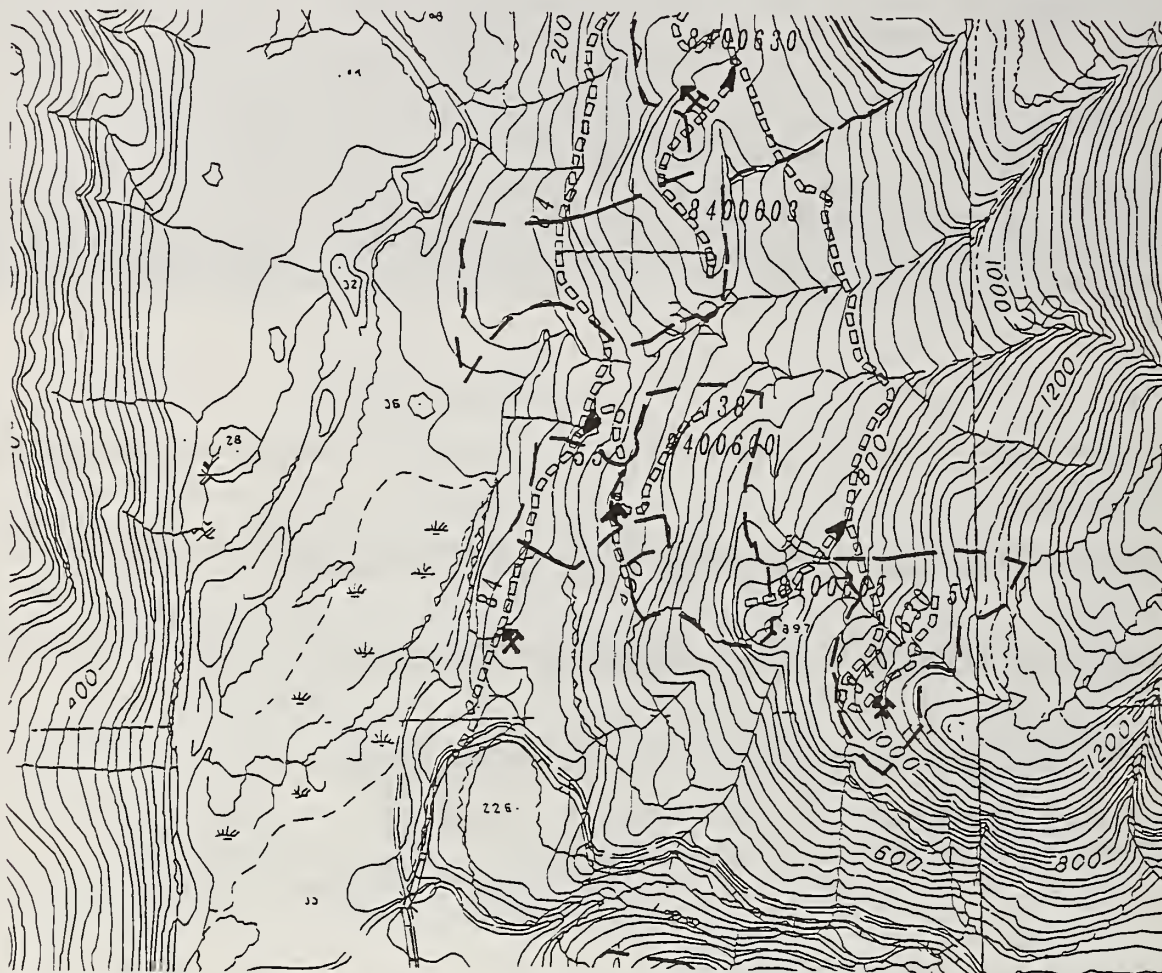
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 ↑
 N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timbering and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. **8400680** M.P. 0.00 to M.P. 0.80
Sale/Offering Area ROD Road #(s) **8400680**
NEW Construction (New or RE) Planned Length 0.80 Actual Length
Unit(s) accessed **58, 59, 57 [ROD# - C19]** Road Locator: Lybrand

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Road to be designed with drainage structures in designated streams only, no crossdrains. Upon completion of harvest activities road shall be closed by removal of all drainage structures, scarifying road surface and seeding entire road prism..

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 2 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

SOILS/WATER RECON/PLANNED: No concerns. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

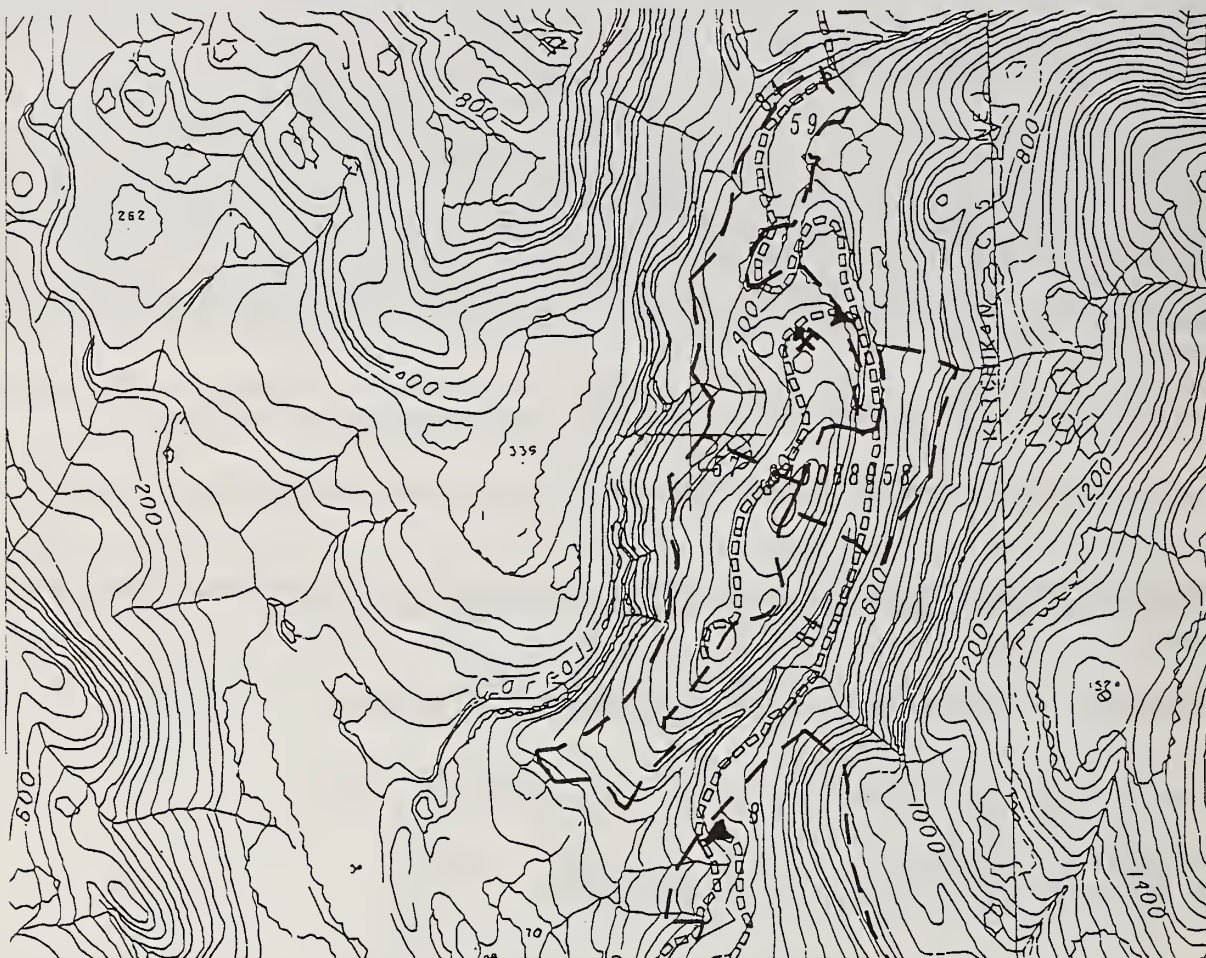
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 / \
 N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8400690 M.P. 0.00 to M.P. 0.50

Sale/Offering Area: ROD Rev. # (s) 8400690

NEW Construction (New or RE) Planned Length 0.50 Actual Length

Unit(s) accessed: 72 [ROD# - C26] Road Locator: Lybrand

Road Management Objectives:

Function Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Road design will incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed, and the road scarified and seeded.

Approved:

District Ranger

Date

**TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:**

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 0 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: The first part of this road runs through a wetland area. No endhaul material to be placed on wetland areas. The middle section of this road is located on MMI=3 soils. This section of road may require partial or full bench road construction.

NRB 4/22/96

AS LOCATED:

BMPs Applied: 12.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

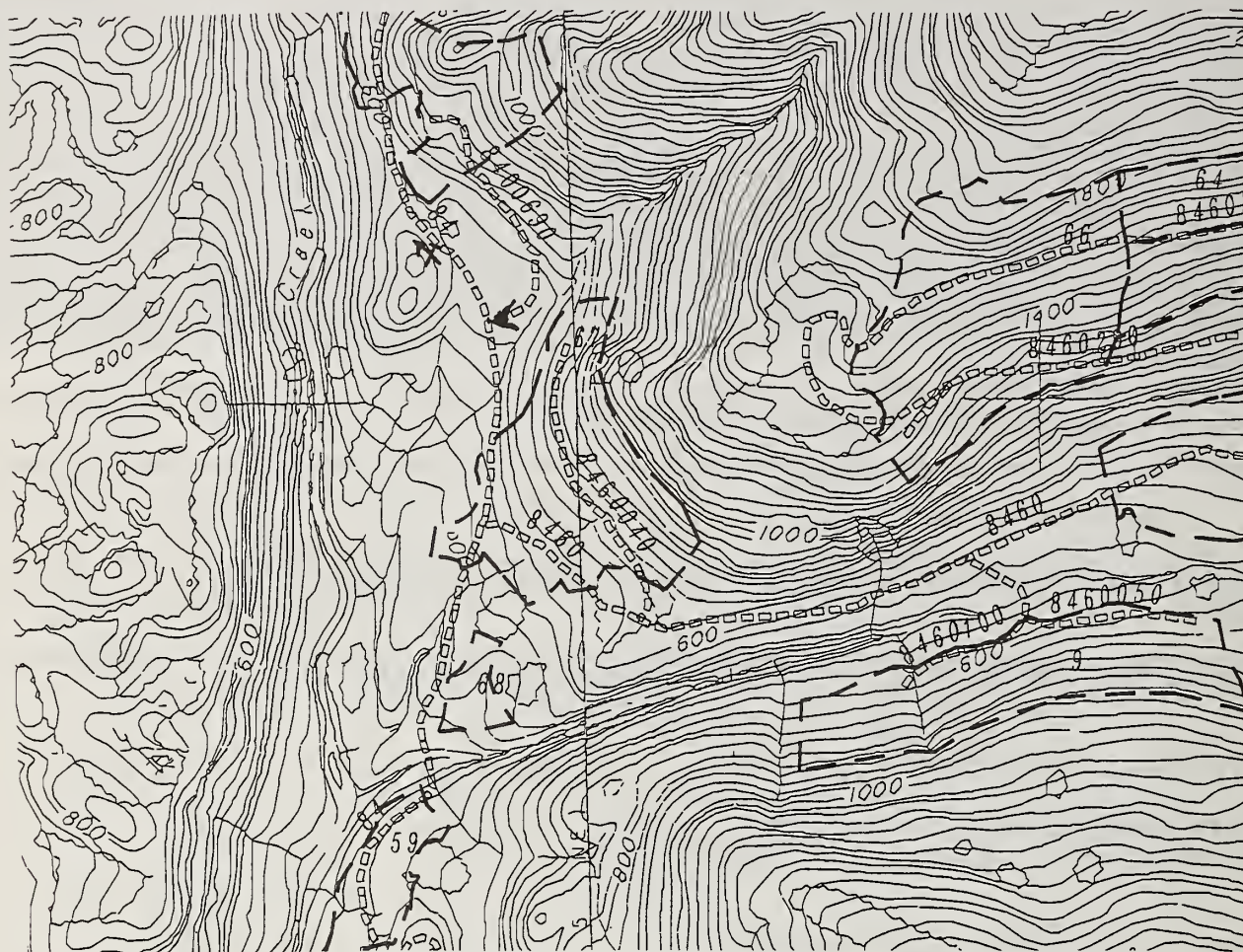
Road #: 8400690 Map #: KTN C4 NW
 SCALE: 1" = 1320 feet

Aerial Photo: Yr. 91

Line 1890

Photo # 45,46

^
 ↑
 N



- Rock Quarry
- 000- Stream Protection
- W Muskeg
- P Fish Passage
- T Timing and Passage
- H Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8400700 M.P. 0.00 to M.P. 2.20
Sale/Offering Area: ROD Road #(s) 8400700
NEW Construction (New or RE) Planned Length 2.20 Actual Length
Unit(s) accessed 73,130,74,131,132 [ROD # - C26, C27, C28, C29, C30] Road Locator: Oien

Road Management Objectives:

Function Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Road design will incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures will be removed, and road prism seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Field reconnaissance has indicated passage requirements will not apply to stream crossings due to the presence of impassable barriers located immediately upstream.

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 1 CLASS II 6 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: A short segment of this road crosses wetlands in the north end of harvest unit 73. No endhaul material to be placed on this wetland NRB 4/22/96

AS LOCATED:

BMPs Applied: 12.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE RECON/PLANNED: No Concerns

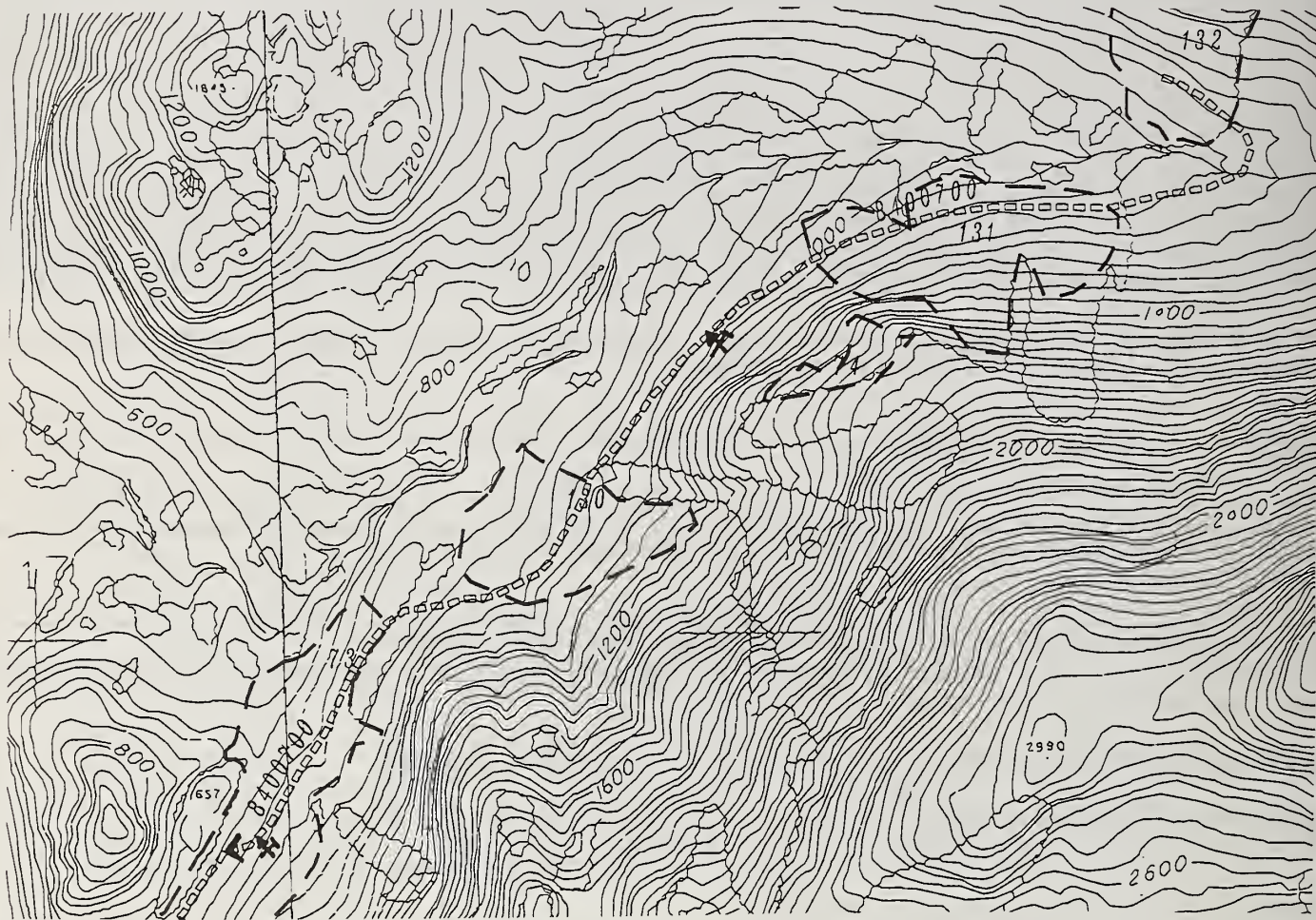
AS LOCATED:







SCALE: 1" = 1320 feet





Aerial Photo: Yr. 91

Line 1890

Photo # 44.43



- | | |
|---|---------------------|
|  | Rock Quarry |
|  | Stream Protection |
|  | Muskeg |
|  | Fish Passage |
|  | Timing and Passage |
|  | Potential Heli Ldgs |

- | | |
|---|-----------------------|
|  | Existing Roads |
|  | Construction |
|  | Reconstruction |
|  | Harvest unit |

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8400 Reconst M.P. 0.00 to M.P. 2.2
Sale/Offering Area: ROD Road # (s) 8400
RE Construction (New or RE) Planned Length 2.2 Actual Length
Unit(s) accessed: numerous Road Locator: Existing

Road Management Objectives:

Func Class C Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Safe 2 Post Safe 2

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Administrative

Erosion Control:

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION CATALOGED STREAM CROSSINGS RECON/PLANNED:

Passage and timing is required for all Class I and Class II stream crossings. Field reconnaissance has verified the presence of Pink, Chum and Coho Salmon. All instream road construction will be permitted between June 15 and August 7.

RECON/PLANNED STREAM CROSSINGS: 5 CLASS I 1 CLASS II CLASS III

P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: The central part of this road segment crosses wetland/beaver pond complex. Recommend relocating this part of the road uphill, to the east and avoiding this wetland. The northern portion of this reconstruction goes through some deep, sandy soils that erode easily when disturbed. Minimize road cuts in this section, attempt to leave existing road cut undisturbed. NRB 4/12/96

AS LOCATED:

BMPs Applied: 12.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: See soil/water.

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

Road #: 8400 Map #: KTN C5 NE
 SCALE: 1" = 26400 feet

Aerial Photo: Yr. 91

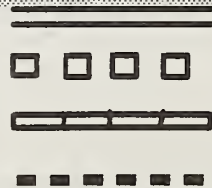
Line 1890

Photo # 1-7

^
 / \
 N



Rock Quarry
 -000- Stream Protection
 W/ Muskeg
 P Fish Passage
 T Timing and Passage
 H Potential Heli Ldgs



Existing Roads
 Construction
 Reconstruction
 Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rationale):

Two existing glulam bridges to be replaced. Overlay entire road with rock.
 Evaluate any other existing drainage structure for replacement.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8400 M.P. 2.20 to M.P. 6.9

Sale/Offering Area: ROD Road #(s) 8400

NEW Construction (New or RE) Planned Length 4.7 Actual Length

Unit(s) accessed: numerous Road Locator: Oien

Road Management Objectives:

Funct Class: C Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 2

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Administrative

Erosion Control:

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Evaluate location to stay out TTRA buffers as much as feasible. Salmon timing will on all Class I and II streams.

I and II streams. Field reconnaissance has verified the presence of Pink, Chum and Coho Salmon along with Steelhead. All instream road construction will be permitted between July 18 and August 7.

RECON/PLANNED STREAM CROSSINGS: 1 CLASS I 5 CLASS II 12 CLASS III
P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Crosses wetlands at several places. Minimize the amount of overlain on wetlands. Minimize roadside ditching and provide adequate cross drains. Donot dispose of end haul material on wetlands. NRB 4/12/96

AS LOCATED:

BMPs Applied: 12.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:





LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: A thin band of marble bedrock, containing some karst features was identified along this road segment by a Foster-Wheeler geologist during the planning of Swan Lake-Lake Tyee power transmission line. Road construction takes place in this area, follow Ketchikan Area karst management guidelines.

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

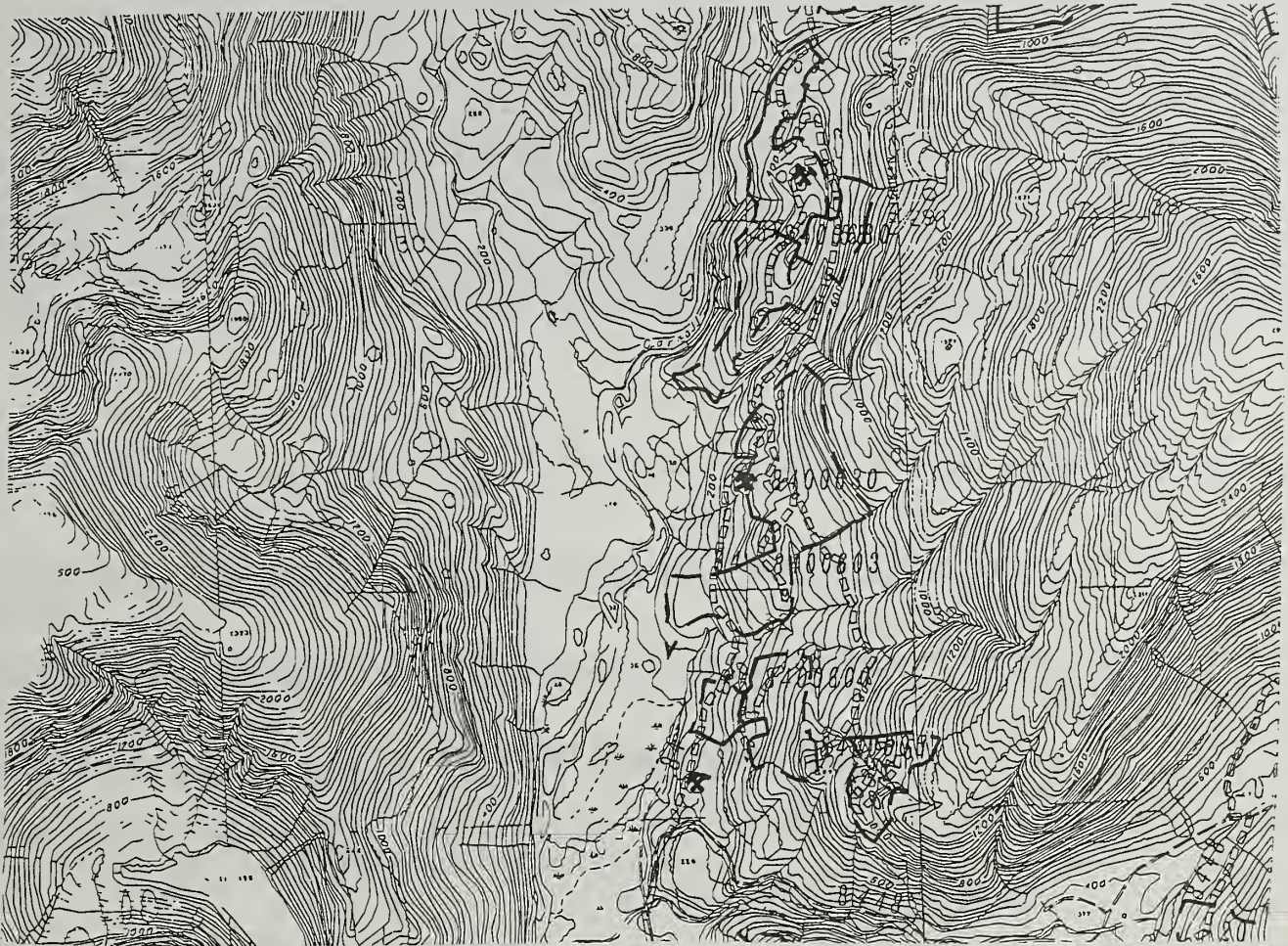


X	Rock Quarry
-000-	Stream Protection
W	Muskeg
P	Fish Passage
T	Timing and Passage
H	Potential Heli Ldgs

	Existing Roads
	Construction
	Reconstruction
	Harvest unit

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.



- | | |
|-------|--------------------|
| X | Rock Quarry |
| -000- | Stream Protection |
| W | Muskeg |
| P | Fish Passage |
| T | Timing and Passag |
| H | Potential Heli Ldg |

• • • • •

Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

3 major drainage structures required, 1 culvert and two bridges

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

This page left blank intentionally.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8448100 M.P. 0.00 to M.P. 0.75

Sale/Offering Area ROD Road #(s) 8448100

NEW Construction (New or RE) Planned Length 1.70 Actual Length

Unit(s) accessed Road Locator: Lybrand

Road Management Objectives:

Func't Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 2 CLASS III
P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Road construction on these soils may require partial or full bench construction to maintain slope stability. No endhaul materials may be placed on wetland areas. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

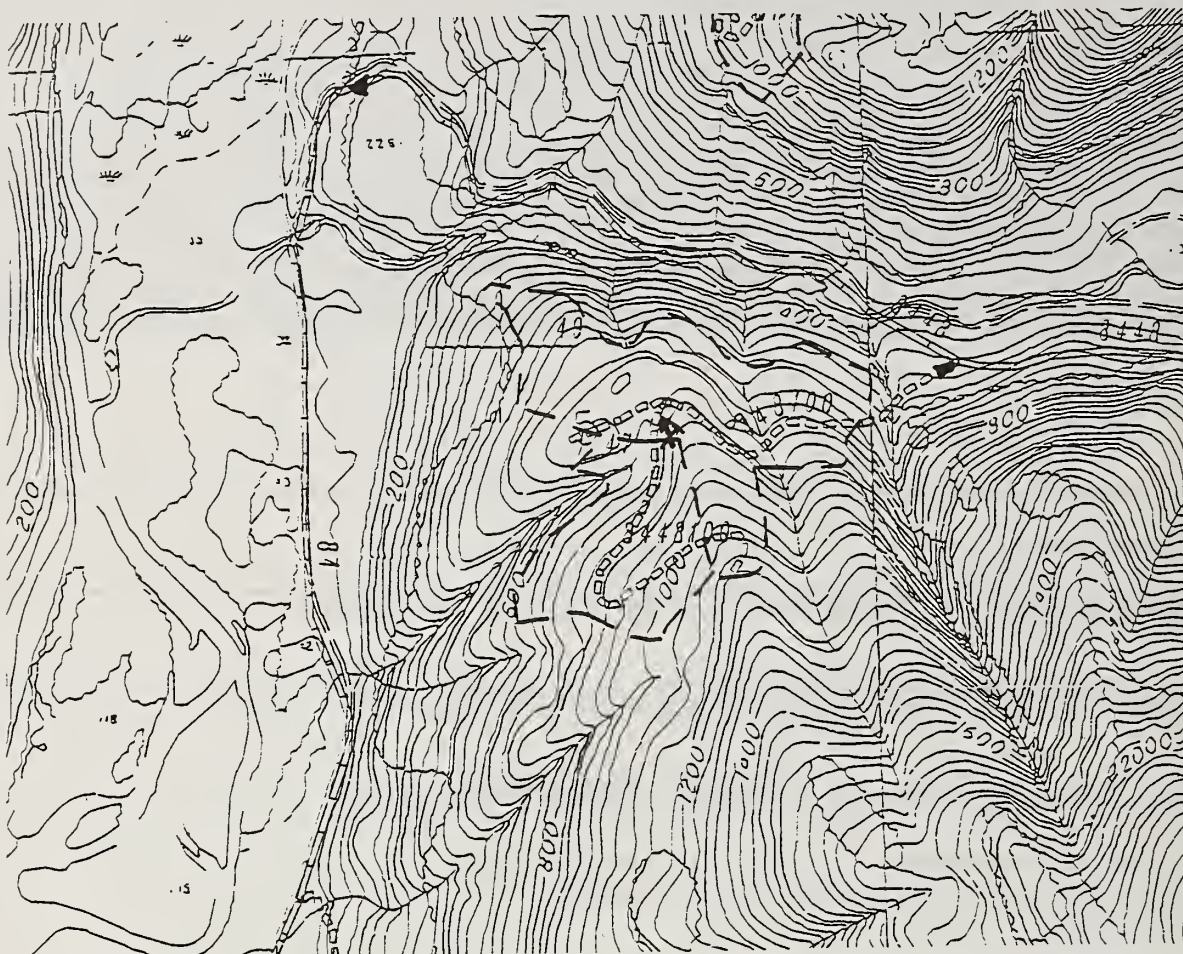
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

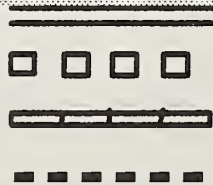
SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 / \
 N



- 000- Rock Quarry
- 000- Stream Protection
- W/ Muskeg
- P Fish Passage
- T Timing and Passage
- H Potential Heli Ldgs



Existing Roads

Construction

Reconstruction

Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

1 major drainage structures required, planned as modular bridge.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8448110 M.P. 0.00 to M.P. 0.25
Sale/Offering Area ROD Road #(s) 8448110
NEW Construction (New or RE) Planned Length 1.70 Actual Length
Unit(s) accessed 47, 49 [ROD# C11] Road Locator: Lybrand

Road Management Objectives:

Function Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Safe 2 Post Safe 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 0 CLASS III

P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Road construction on these soils may require partial or full bench construction to maintain slope stability. No endhaul materials may be placed on wetland areas. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

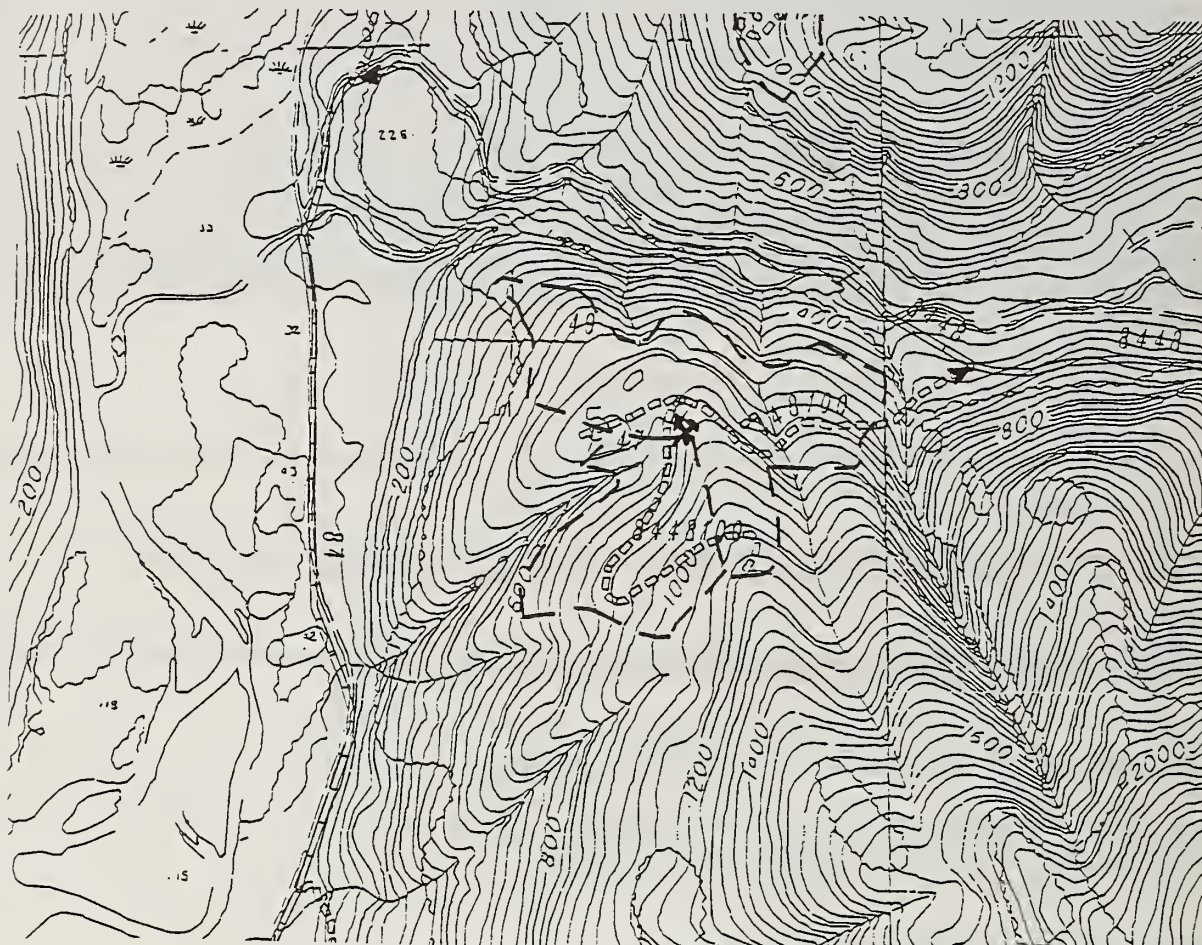
AS LOCATED:





LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:



- | | |
|---|-----------------------|
|  | Existing Roads |
|  | Construction |
|  | Reconstruction |
|  | Harvest unit |

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8448200 M.P. 0.00 to M.P. 1.70
Sale/Offering Area ROD Road #(s) 8448200
NEW Construction (New or RE) Planned Length 1.70 Actual Length
Unit(s) accessed 22 [ROD# - C14 and C15] Road Locator: Lybrand

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit

Closure Devices: Barrier, bridge removal

Erosion Control: water bar

Other Considerations:

Road design wil incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 12 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No endhaul materials may be placed on wetland areas. No other concerns. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

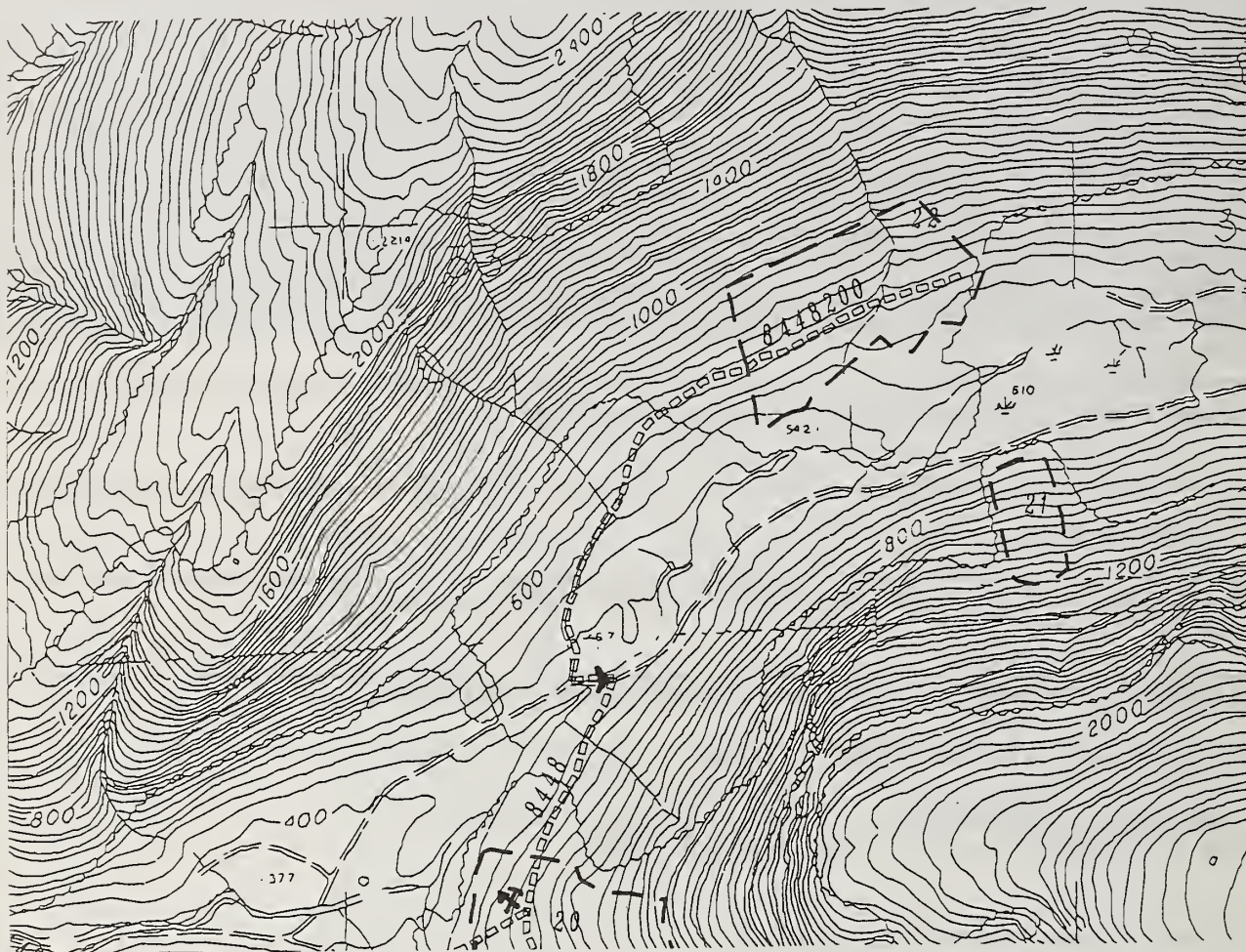
Road #: 8448200 Map #: KTN C4 NW
 SCALE: 1" = 1320 feet

Aerial Photo: Yr. 71

Line

Photo # 1573-188

^
 / \
 | |
 | |
 N



Rock Quarry



Stream Protection



Muskeg



Fish Passage



Timing and Passage



Potential Heli Ldgs



Existing Roads



Construction



Reconstruction



Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):
 No major drainage structures planned.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8448300 M.P. 0.00 to M.P. 1.30
Sale/Offering Area ROD Road # (s) 8448300
NEW Construction (New or RE) Planned Length 1.30 Actual Length
Unit(s) accessed 20,19 [ROD# - C12 and C13] Road Locator: Oien

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT
Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1
Intended Purpose and Use: silvicultural purposes
Management Strategy: Encourage Accept Discourage Eliminate X Prohibit
Closure Devices: Barrier, bridge removal
Erosion Control: water bar
Other Considerations:

Road design will incorporate drainage structures for designated streams only, no cross drains. Upon completion of harvest activities all drainage structures will be removed and the road scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Field reconnaissance has verified presence of resident fish, passage will be required on Class II stream.

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 1 CLASS II 6 CLASS III
P

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No endhaul materials may be placed on wetland areas. No other concerns. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

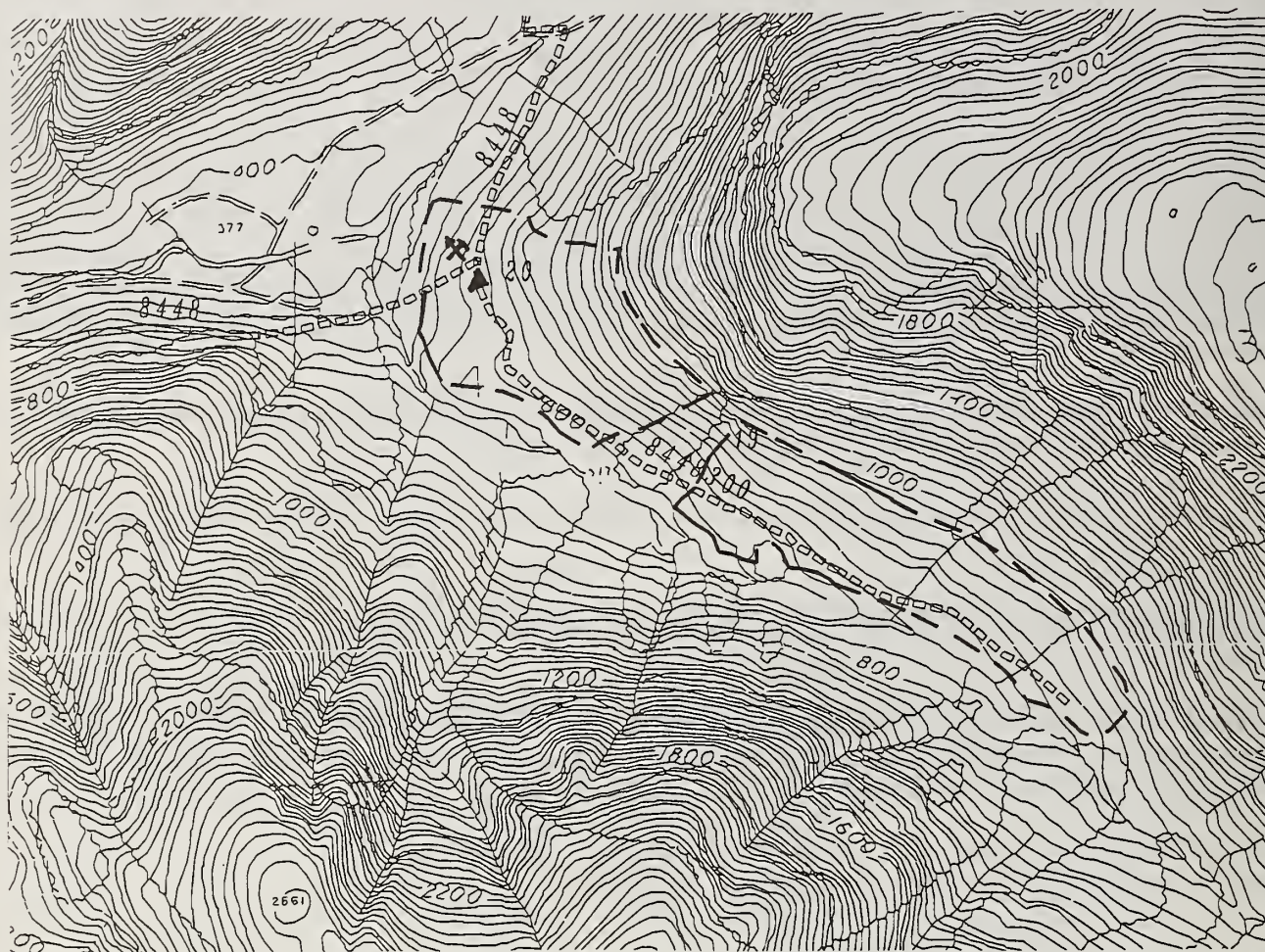
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 / \
 ———
 N



Rock Quarry



Stream Protection



Muskeg



Fish Passage



Timing and Passage



Potential Heli Ldgs



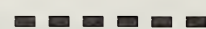
Existing Roads



Construction



Reconstruction



Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rationale):

One major structure planned, culvert, class II stream.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name ~~Upper~~ Carroll Road No. 8448Re M.P. 0.00 to M.P. 1.9

Sale/Offering Area ROD Road # (s) 8448

RE Construction (New or RE) Planned Length 1.9 Actual Length

Unit(s) accessed numerous Road Locator: Lybrand

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 2

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Administrative

Erosion Control: waterbar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns

AS LOCATED:

FISHERIES HABITAT PROTECTION CATALOGED STREAM CROSSINGS RECON/PLANNED:

Passage and timing is required for all Class I and Class II stream crossings. Field reconnaissance has verified the presence of anadromous fish downstream.. All instream road construction will be permitted between June 15 and August 7. Timing restrictions may be required for some Class III streams after final road location is inspected by District Biologist.

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 2 CLASS II 3 CLASS III

P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Parts of this existing road cross wetlands. During reconstruction, minimize road fill in these wetlands. NRB 4/22/96

AS LOCATED:

BMPs Applied: 12.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE RECON/PLANNED: No Concerns

AS LOCATED:

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8448 M.P. 1.9 to M.P. 2.7
Sale/Offering Area ROD Road #(s) 8448
NEW Construction (New or RE) Planned Length 0.8 Actual Length
Unit(s) accessed numerous Road Locator: Lybrand

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT
Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1
Intended Purpose and Use: silvicultural purposes
Management Strategy: Encourage Accept Discourage Eliminate X Prohibit
Closure Devices: Barrier, bridge removal
Erosion Control: waterbar

Other Considerations:

Road design will incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures will be removed, and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION CATALOGED STREAM CROSSINGS RECON/PLANNED:

Passage and timing is required for all Class I and Class II stream crossings. Field reconnaissance has verified the presence of anadromous fish downstream.. All instream road construction will be permitted between June 15 and August 7. Timing restrictions may be required for some Class III streams after final road location is inspected by District Biologist.

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 2 CLASS II 3 CLASS III
P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Parts of this existing road cross wetlands. During reconstruction, minimize road fill in these wetlands. NRB 4/22/96

AS LOCATED:

BMPs Applied: 12.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns
AS LOCATED:

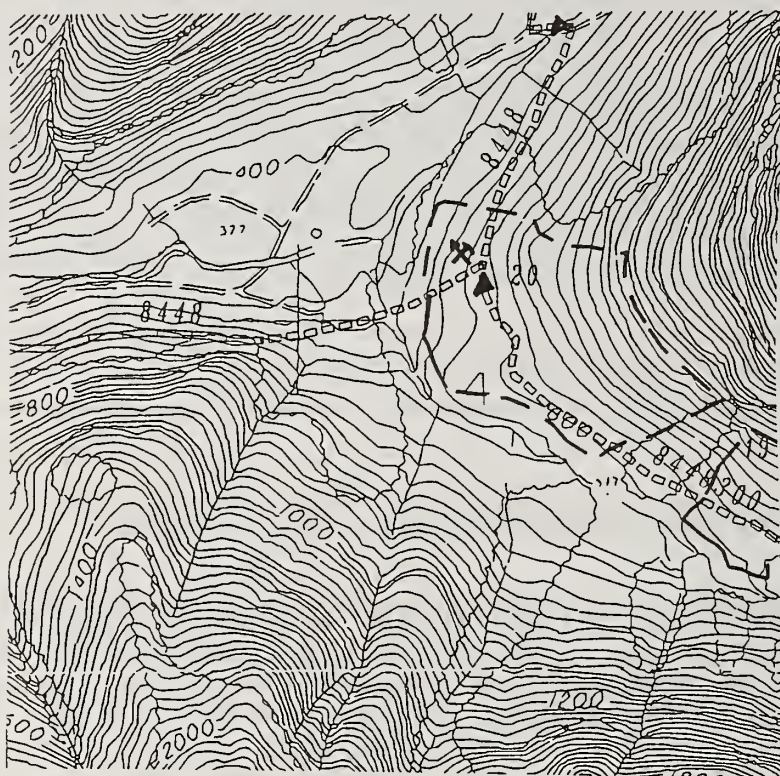
VISUAL/RECREATION RECON/PLANNED: No Concerns
AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns
AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns
AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns
AS LOCATED:

^
 / \
 |
 |
 |
 N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):
 2 major stream crossings, both culverts, class II streams.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8460 M.P. 0.00 to M.P. 3.0

Sale/Offering Area ROD Road #(s) 8460

NEW Construction (New or RE) Planned Length 3.0 Actual Length

Unit(s) accessed numerous Road Locator: Rouso

Road Management Objectives:

Func't Class C Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale M.P. 0.0 - 2.1 level 2(jct. w/8460200), M.P. 2.1 - 3.0 Level 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit X

Closure Devices: Barrier, Administrative

Erosion Control: water bar

Other Considerations:

Road design, M.P. 2.1 - 3.0, shall incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:
RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 9 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: A 500 foot section of this road crosses wetlands in harvest unit 16.
Minimize road fill in this area. Do not dispose of end-haul material on these wetlands. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No blasting from mile post 1.5 to milepost 3.0 from May 15 to June 15 to protect mountain goat kidding areas.

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns
AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns
AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns
AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns
AS LOCATED:

Photo # 46,47

Photo # 46,47

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8460040 M.P. 0.00 to M.P. 0.4

Sale/Offering Area ROD Rmt # (s) 8460040

NEW Construction (New or RE) Planned Length 0.40 Actual Length

Unit(s) accessed: 67 [ROB# - C25] Road Locator: Oien

Road Management Objectives:

Funcnt Class: L Traffic Service Level: D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit X

Closure Devices: Vegetative

Erosion Control: water bar

Other Considerations:

Road design shall incorporate drainage structures at designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns

AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 1 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No endhauls material to be placed on wetland areas.

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

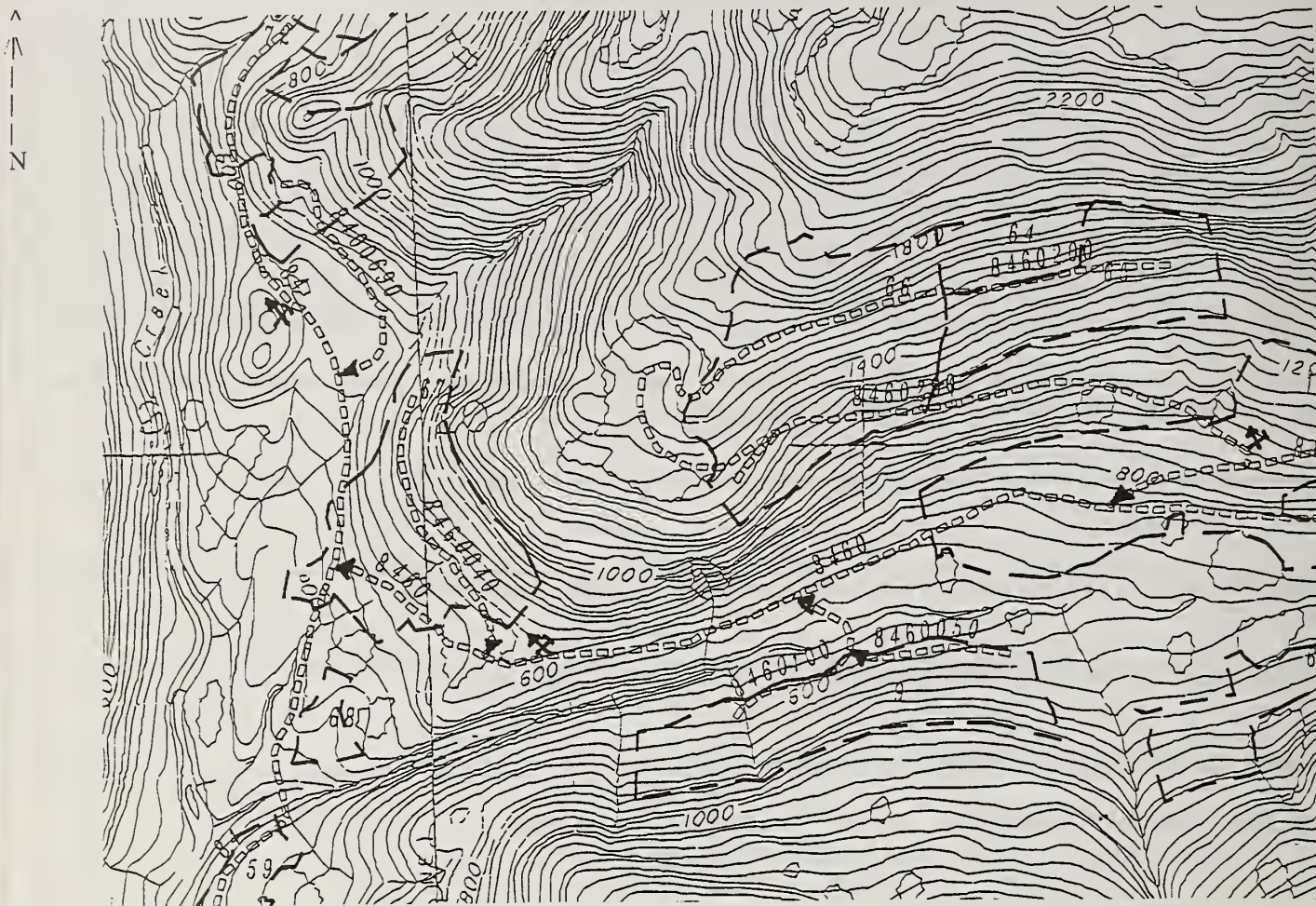
AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. **84600100** M.P. 0.00 to M.P. 0.50
Sale/Offering Area: ROD Road # (s) **84600100**
NEW Construction (New or RE) Planned Length 0.50 Actual Length
Unit(s) accessed: **9 [ROD# - C21]** Road Locator: Lybrand

Road Management Objectives:

Funct Class: L Traffic Service Level: D Hgw. Safety Act No: Design Veh: LT
Critical Veh: LT Maint Level: Active Sale: 2 Post Sale: 1
Intended Purpose and Use: silvicultural purposes
Management Strategy: Encourage Accept Discourage Eliminate X Prohibit
Closure Devices: Barrier, bridge removal
Erosion Control: water bar

Other Considerations:

Road design shall incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Due to the transport capability of downstream reaches, timing restrictions will apply to Class II crossings (July 18 to August 7)..

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 1 CLASS II 5 CLASS III
T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: The western section of this road is on MMI=3 soils. Road construction on these soils may include full bench design to maintain slope stability. No endhauls material to be placed on wetland areas. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

Road #: 8460100 Map #: KTN C4 NW
 SCALE: 1" = 1320 feet

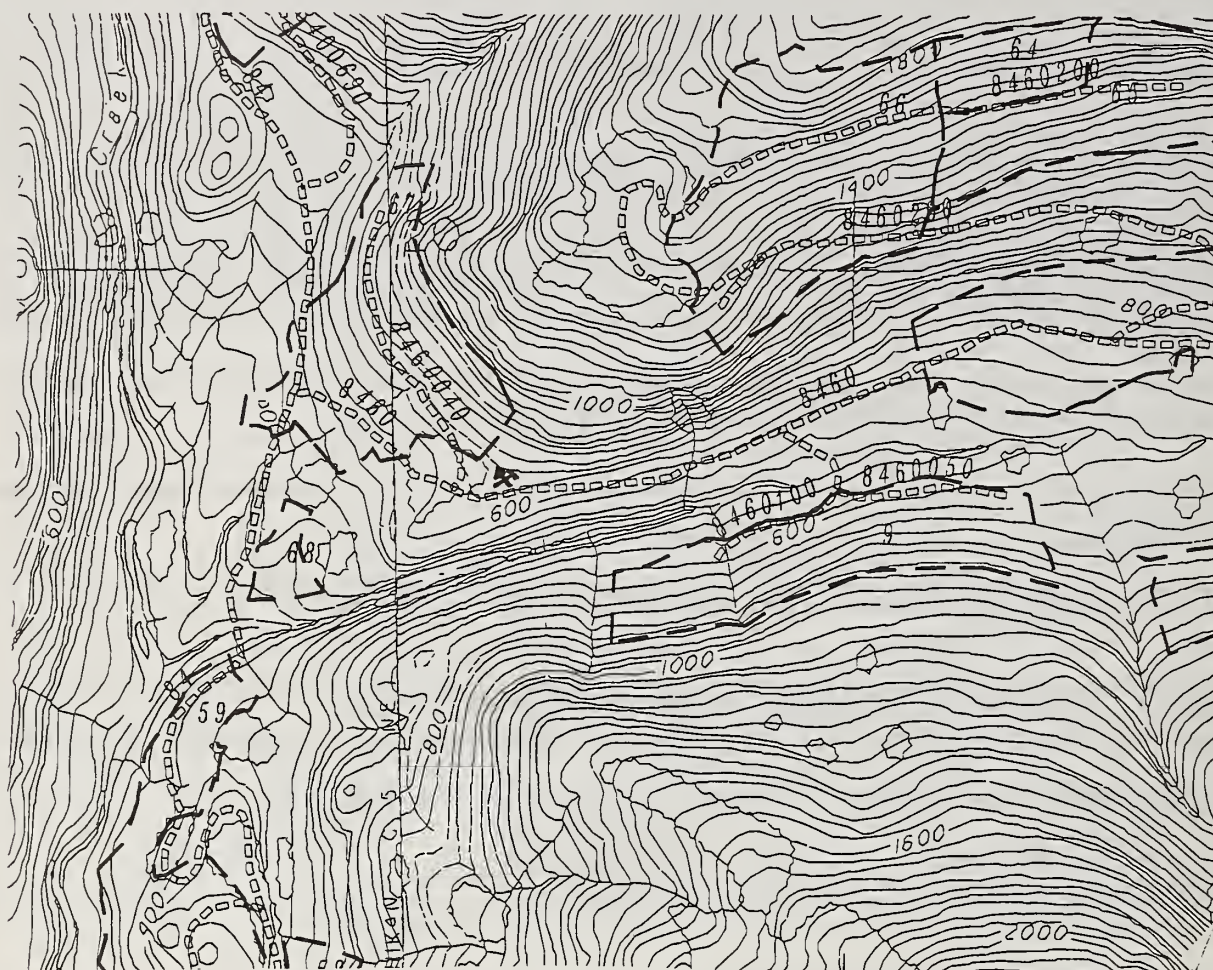
Aerial Photo: Yr. 91

Line 1890

Photo # 46,47

^
 \/

 N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

One major structure planned, modular bridge on class II stream.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. 8460200 M.P. 0.00 to M.P. 3.00
Sale/Offering Area: ROD Road #(s) 8460200
NEW Construction (New or RE) Planned Length 3.00 Actual Length
Unit(s) accessed: 16, 64, 65, 66 [ROD# - C23 and C24] Road Locator: Lybrand

Road Management Objectives:

Function Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Safe 2 Post Safe 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit X

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Road design, M.P. 1.5 - 3.0, shall incorporate drainage structures at designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 0 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Harvest unit 66 and 500 feet in the north part of harvest unit 16 are on MMI=3 soils. Road construction may require partial or full bench design to maintain slope stability.

NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Blasting from May 15 to June 15 to protect mountain goat kidding areas.

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

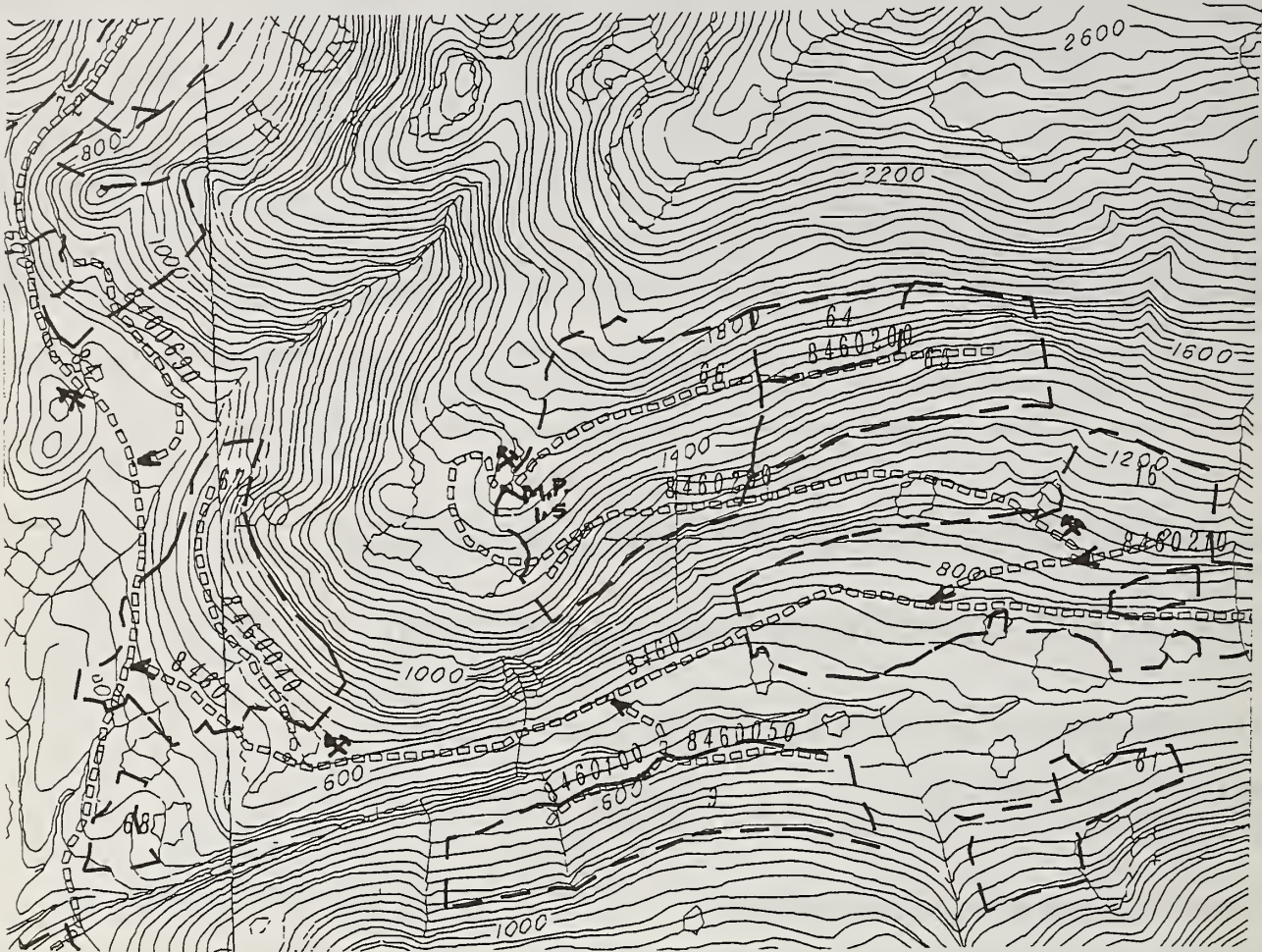
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 ↑
 N



- ✖ Rock Quarry
- 000- Stream Protection
- W Muskeg
- P Fish Passage
- T Timing and Passage
- H Potential Heli Ldgs

- ==== Existing Roads
- □ □ □ Construction
- ==== Reconstruction
- - - - Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. **8460210** M.P. 0.00 to M.P. 0.50
Sale/Offering Area: ROD Road #(s) **8460210**
NEW Construction (New or RE) Planned Length 0.50 Actual Length
Unit(s) accessed: **16 [ROD# - C23]** Road Locator: Lybrand

Road Management Objectives:

Func Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Road design, M.P. 0 to 0.5 shall incorporate drainage structures at designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 0 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III

CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: Harvest unit 66 and 500 feet in the north part of
harvest unit 16 are on MMI=3 soils. Road construction may require partial or full bench design to maintain slope stability.

NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No blasting from May 15 to June 15 to protect mountain goat kidding areas.

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

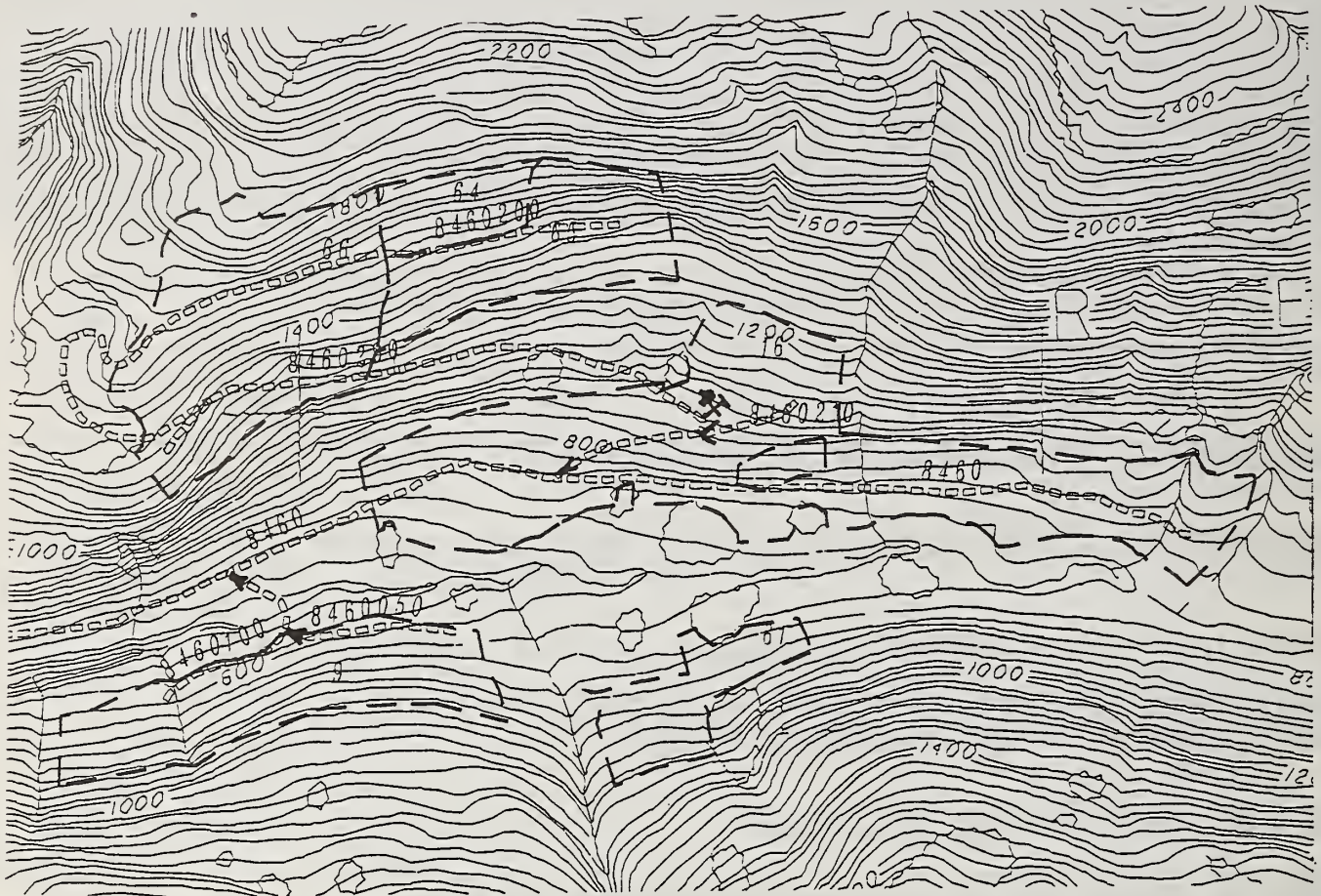
LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

^
 / \
 |
 |
 |
 |
 N



- ✖ Rock Quarry
- 000- Stream Protection
- W Muskeg
- P Fish Passage
- T Timing and Passage
- H Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8400500 M.P. 0.00 to M.P. 2.50
Sale/Offering Area ROD Road #(s) 8400550
NEW Construction (New or RE) Planned Length 2.50 Actual Length
Unit(s) accessed 41,27,28,35,38 [ROD# - C07, C08 and C09] Road Locator: Lybrand

Road Management Objectives:

Function Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT
Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1
Intended Purpose and Use: silvicultural purposes
Management Strategy: Encourage Accept Discourage Eliminate Prohibit X
Closure Devices: Barrier
Erosion Control: water bar
Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Fish timing may be required for all instream road construction due to the close proximity of anadromous fish habitat. Timing window will be established after road location is finalized and inspected by District Biologist. Passage will be required on all Class I and II streams.

RECON/PLANNED STREAM CROSSINGS: 1 CLASS I 1 CLASS II 1 CLASS III
P T P T T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: The upper section of this road segment crosses some areas of MMI=3 soils. Full bench road construction may be required to minimize the potential for slope failures.

AS LOCATED:

BMPs Applied: 13.5, 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns
AS LOCATED:

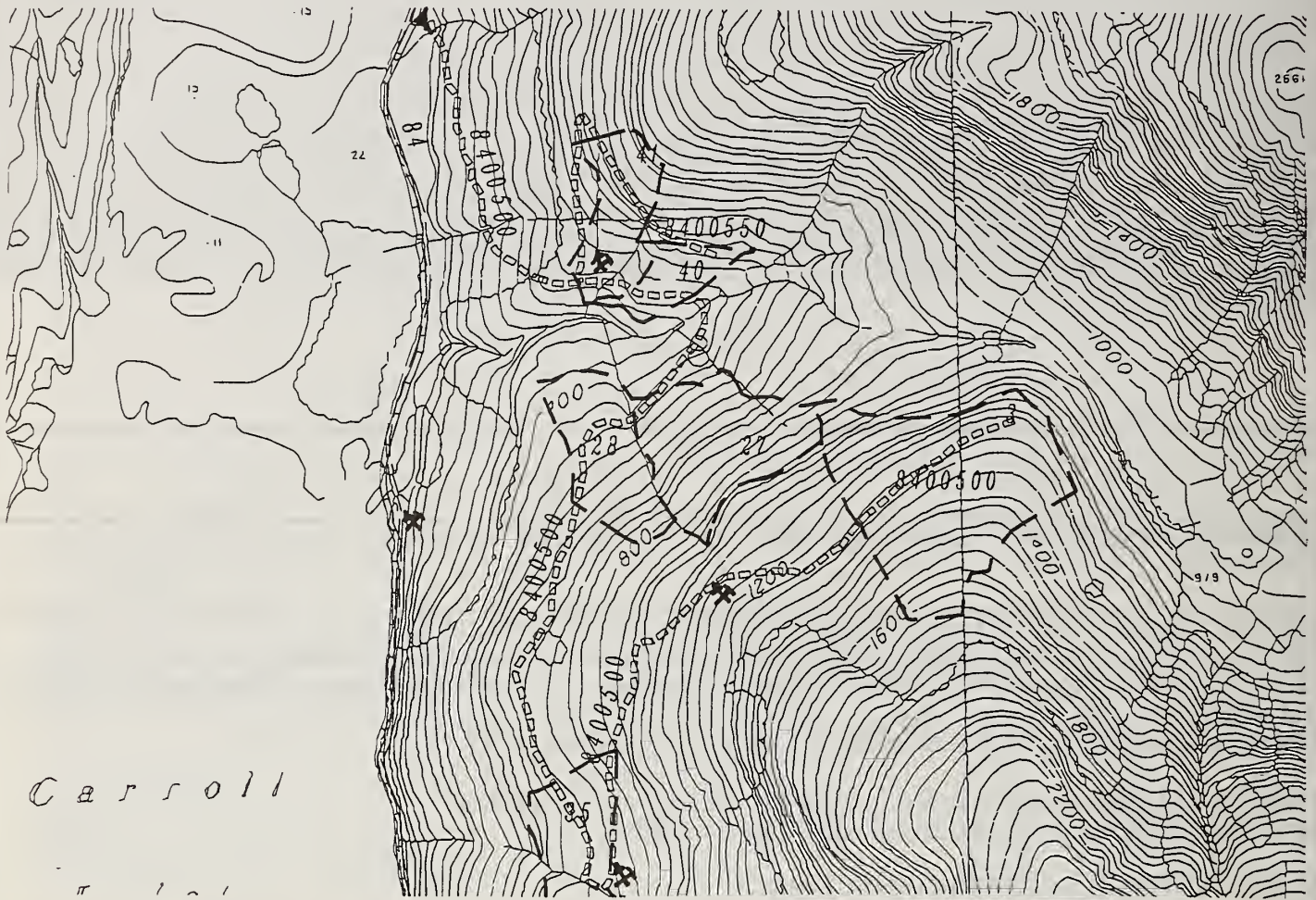
VISUAL/RECREATION RECON/PLANNED: No Concerns
AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns
AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns
AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns
AS LOCATED:

^
N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Edgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):
 1 major drainage structures required, planned as large culvert.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

krdkte1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name: Upper Carroll Road No. **8400603** M.P. 0.00 to M.P. 0.50
Sale/Offering Area: ROD Road #(s) **8400603**
NEW Construction (New or RE) Planned Length: 0.50 Actual Length:
Unit(s) accessed: **8 [ROD# - C18]** Road Locator: Rousso

Road Management Objectives:

Funct Class: L Traffic Service Level: D Hgw. Safety Act No. Design Veh: LT

Critical Veh: LT Maint Level: Active Sale: 2 Post Sale: 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate Prohibit X

Closure Devices: Barrier

Erosion Control: water bar

Other Considerations:

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 0 CLASS II 0 CLASS III

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: No concerns. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns
AS LOCATED:

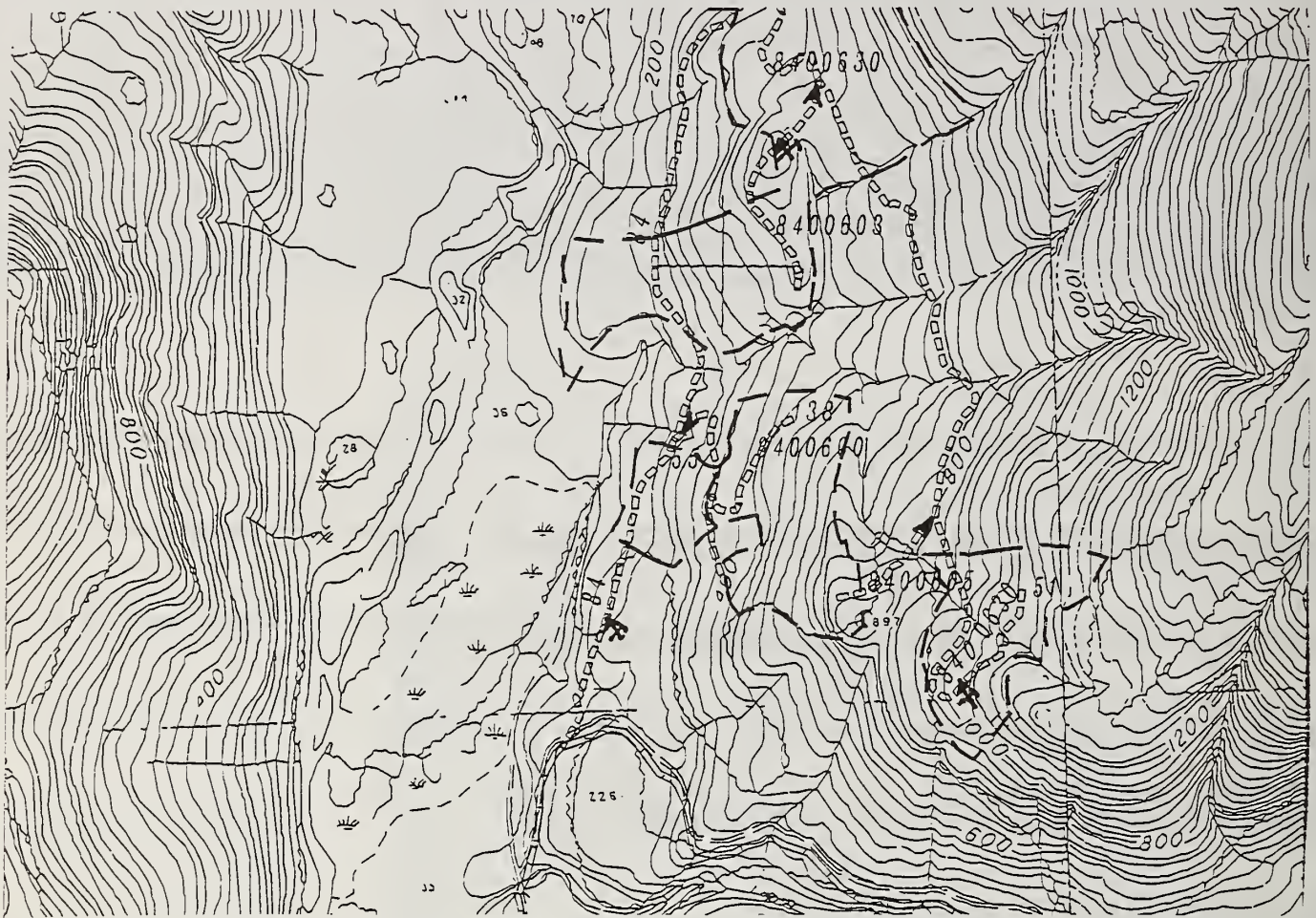
VISUAL/RECREATION RECON/PLANNED: No Concerns
AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns
AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns
AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns
AS LOCATED:

^
 /
 N



- Rock Quarry
- Stream Protection
- Muskeg
- Fish Passage
- Timing and Passage
- Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

1/10/96

ROAD CARD: RECON/PLANNING/AS LOCATED

EIS Name Upper Carroll Road No. 8460050 M.P. 0.00 to M.P. 0.50
Sale/Offering Area ROD Road #(s) 8460050
NEW Construction (New or RE) Planned Length 0.50 Actual Length
Unit(s) accessed 9 [ROD# - C2H] Road Locator: Lybrand

Road Management Objectives:

Funct Class L Traffic Service Level D Hgw. Safety Act No Design Veh: LT

Critical Veh: LT Maint Level: Active Sale 2 Post Sale 1

Intended Purpose and Use: silvicultural purposes

Management Strategy: Encourage Accept Discourage Eliminate X Prohibit

Closure Devices: Barrier, bridge removal

Erosion Control: water bar

Other Considerations:

Road design shall incorporate drainage structures for designated streams only, no crossdrains. Upon completion of harvest activities all drainage structures shall be removed and the road prism scarified and seeded.

Approved:

District Ranger

Date

TIMBER/LOGGING SYSTEM/ADMINISTRATION RECON/PLANNED: No Concerns
AS LOCATED:

FISHERIES HABITAT PROTECTION STREAM CROSSINGS RECON/PLANNED:

Due to the transport capability of downstream reaches, timing restrictions will apply to Class II crossings (July18 to August 7)..

RECON/PLANNED STREAM CROSSINGS: 0 CLASS I 1 CLASS II 5 CLASS III
T

AS LOCATED STREAM CROSSINGS: CLASS I CLASS II CLASS III
CROSSING # STREAM ID FLAGGING CLASS PASSAGE TIMING

AS LOCATED CATALOGED STREAM CROSSINGS:

SOILS/WATER RECON/PLANNED: The western section of this road is on MMI=3 soils. Road construction on these soils may include full bench design to maintain slope stability. No endhauls material to be placed on wetland areas. NRB 4/22/96

AS LOCATED:

BMPs Applied: 14.3, 14.5, 14.8, 14.9, 14.12, 14.17, 14.18

WILDLIFE RECON/PLANNED: No Concerns

AS LOCATED:

VISUAL/RECREATION RECON/PLANNED: No Concerns

AS LOCATED:

CULTURAL RECON/PLANNED: No Concerns

AS LOCATED:

LANDS/MINERALS/GEOLOGY/KARST RECON/PLANNED: No Concerns

AS LOCATED:

SILVICULTURE: RECON/PLANNED: No Concerns

AS LOCATED:

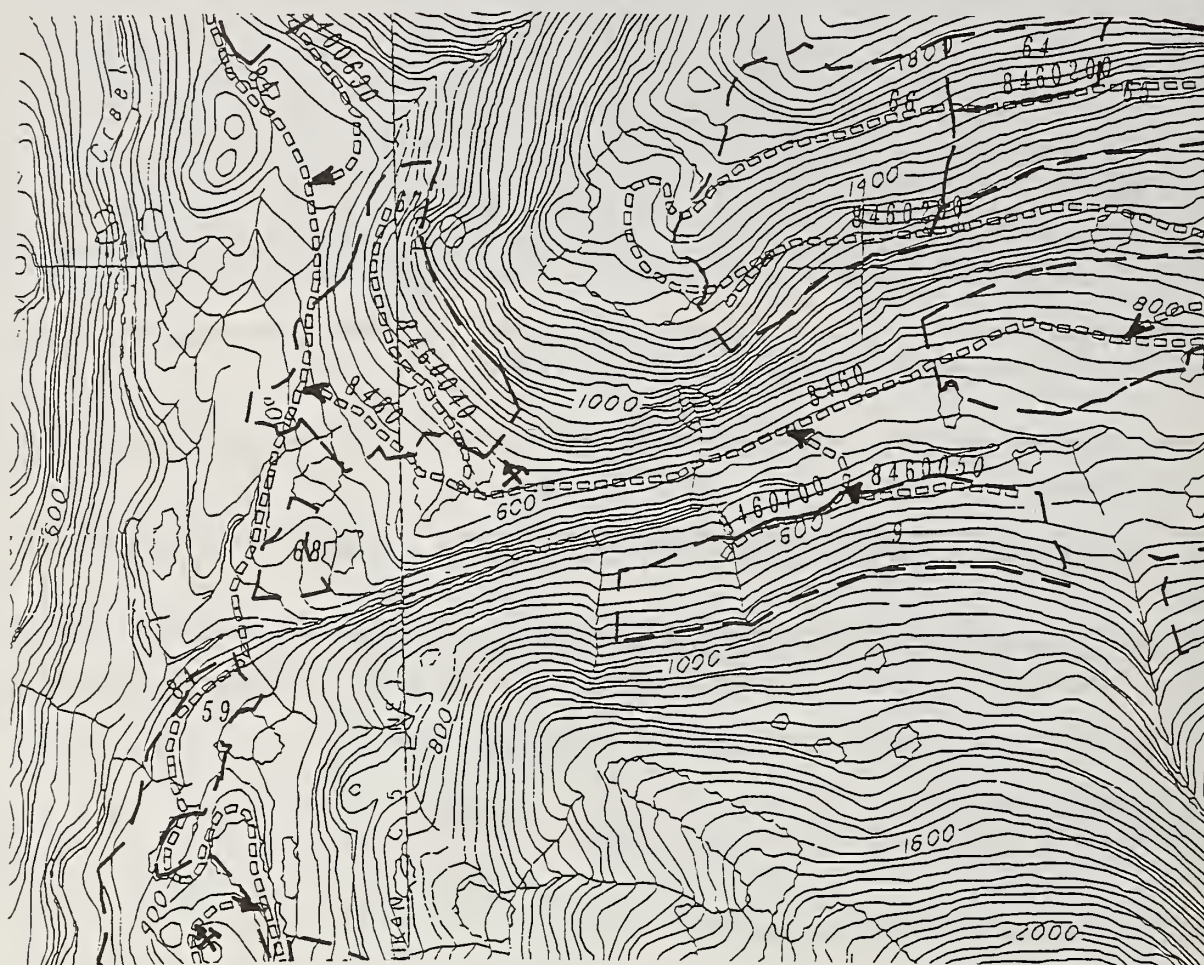
Road #: 8460050 Map #: KTN C4 NW
 SCALE: 1" = 1320 feet

Aerial Photo: Yr. 91

Line 1890

Photo # 46,47

^
 / \
 | |
 | |
 N



- X Rock Quarry
- 000- Stream Protection
- W Muskeg
- P Fish Passage
- T Timing and Passage
- H Potential Heli Ldgs

- Existing Roads
- Construction
- Reconstruction
- Harvest unit

Recon/Location Narrative/Design Considerations: (Major drainages, road grades, future access, etc.)

Planned/Implemented: (describe changes and rational):

One major structure planned, modular bridge on class II stream.

Rock Source(s) Location and Special Mitigation: No special concerns. Pits located as shown on map.

UPPER CARROLL ACCESS MANAGEMENT
ROAD MANAGEMENT OBJECTIVES

R.O.D. Roads

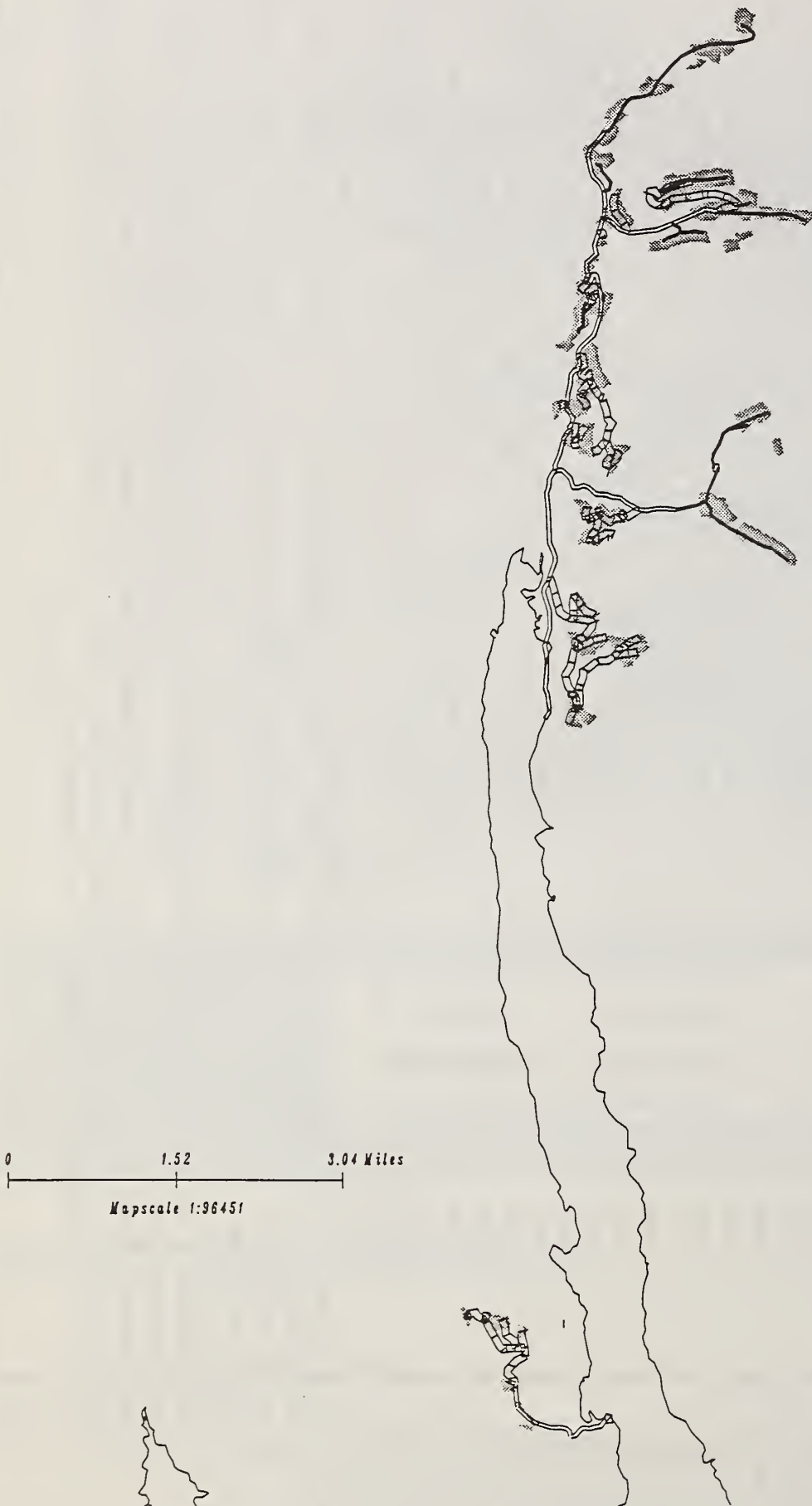
Road Number	Traffic Service Level	Road Management Objectives	Existing or New Construction	Post Sale Maintenance Level	Method of Closure	Stream Crossings			Fisheries Restrictions			Swan Timing	Footnote reference #, Remarks and/or Concerns
						I	II	III	T	P			
8300000	D	Close	C/E	2	Admin.	x	x	x	x	x		x	Admin access, #1, #2
8337000	D	Close	E	1	Barrier		x	x					Economics, #3
8337100	D	Close	E	1	Barrier			x					Economics, #3
8340000	D	Close	E	2	Admin								Admin. access, #1
8340100	D	Close	E	2	Admin								Admin. access, #1
8400000	D	Close	E/C	2	Admin	x	x	x	x	x		x	Admin. access, #1, #2
8400500	D	Close	C	1	Barrier		x	x	x	x		x	Economics, #3, #2
8400550	D	Close	C	1	Barrier	x		x	x	x		x	Economics, #3, #2
8400600	D	Close	C	1	Barrier			x					Economics, #3
8400603	D	Close	C	1	Barrier			x					Economics, #3
8400605	D	Close	C	1	Barrier			x					Economics, #3
8400630	D	Close	C	1	Barrier			x					Economics, #3
8400680	D	Close	C	E	Barrier								Economics, #4
8400690	D	Close	C	E	Barrier								Economics, #4
8400700	D	Close	C	E	Barrier		x	x		x			Economics, #4
8448000	D	Close	2/E	2/E	Barrier		x	x	x	x			Admin. access, #1, #4
8448100	D	Close	C	1	Barrier		x	x	x	x			Economics, #3
8448110	D	Close	C	1	Barrier			x					Trib. to 8448100, #3
8448200	D	Close	C	E	Barrier		x	x	x	x			Trib. to 8448000, #4
8448300	D	Close	C	E	Barrier			x					Trib. to 8448000, #4
8460000	D	Close	C	1/E	Barrier		x	x	x	x			Economics, #3, #4
8460040	D	Close	C	1	Barrier								Economics, #4
8460050	D	Close	C	E	Barrier								Trib. to 8460100, #4
8460100	D	Close	C	E	Barrier		x	x	x	x			Trib. to 8460000, #3
8460200	D	Close	C	1/E	Barrier			x					Trib. to 8460000, #3, #4
8460210	D	Close	C	E	Barrier			x					Economics, #4

Note: 1. Post Harvest maintenance level 2 roads, will be open for administrative use only (monitoring & post sale silvicultural activities).



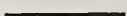

2. Swan timing will apply to these roads within 1/2 mile of the shoreline in the Carroll Creek estuary and the Neets Bay estuary.

3. Upon completion of post sale activities, roads that have modular bridges scheduled to be removed and other maintenance level 1 roads, shall receive maintenance level 1 work as required by FSH 7709.58 and in full conformance with BMP 14.20.

4. Maintenance level E indicates eliminating access. This requires removal of all drainage structures, scarifying the road prism and seeding the entire roadway. Roads that have E level maintenance will have drainage structures installed at designated streams only, no crossdrains.



 Harvest Unit

 Level 1
 Level 2
 Eliminate
 Shoreline



The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means of communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-2791.

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.



Federal Recycling Program
Printed on Recycled Paper

NATIONAL AGRICULTURAL LIBRARY



1022381544